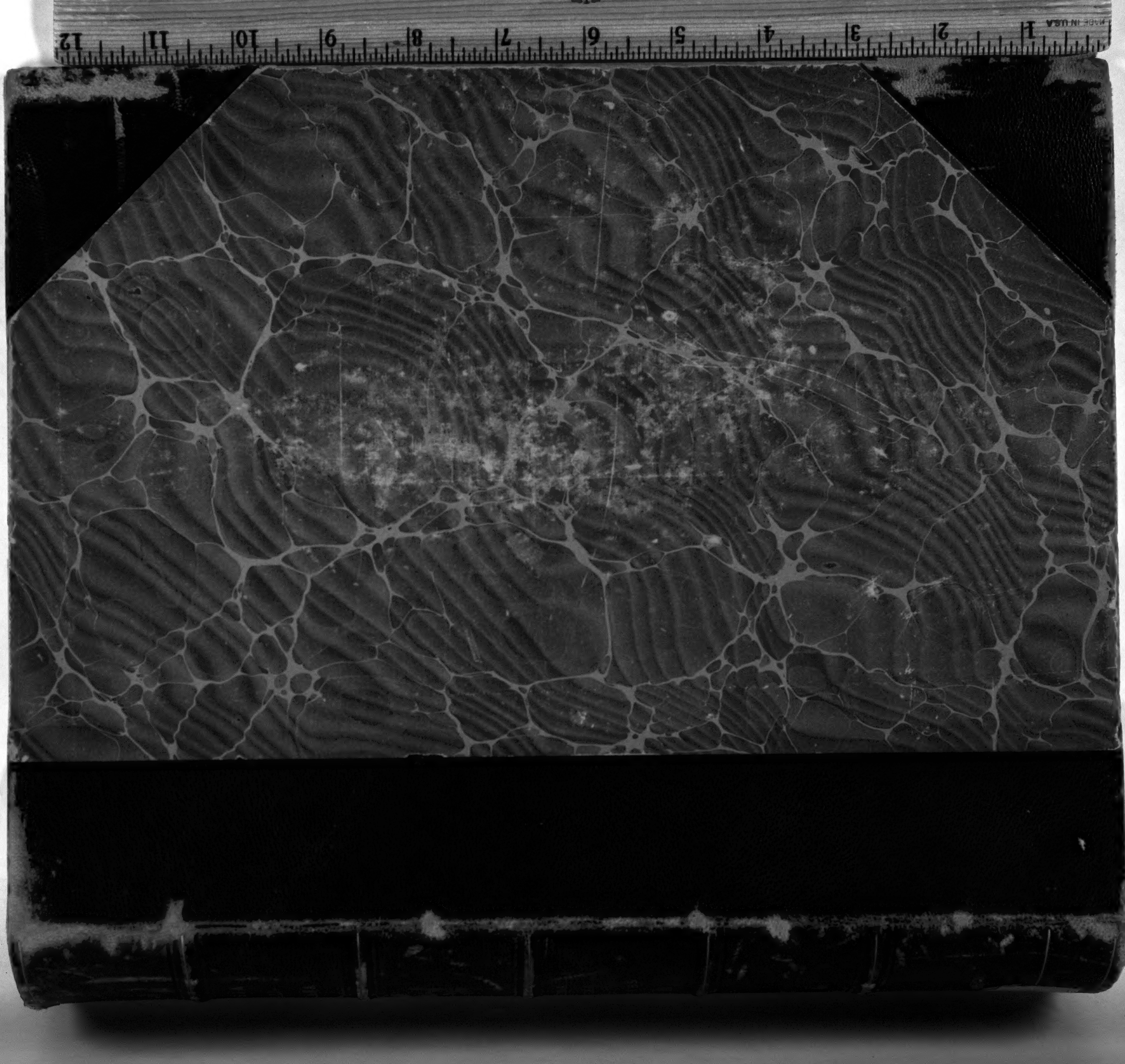
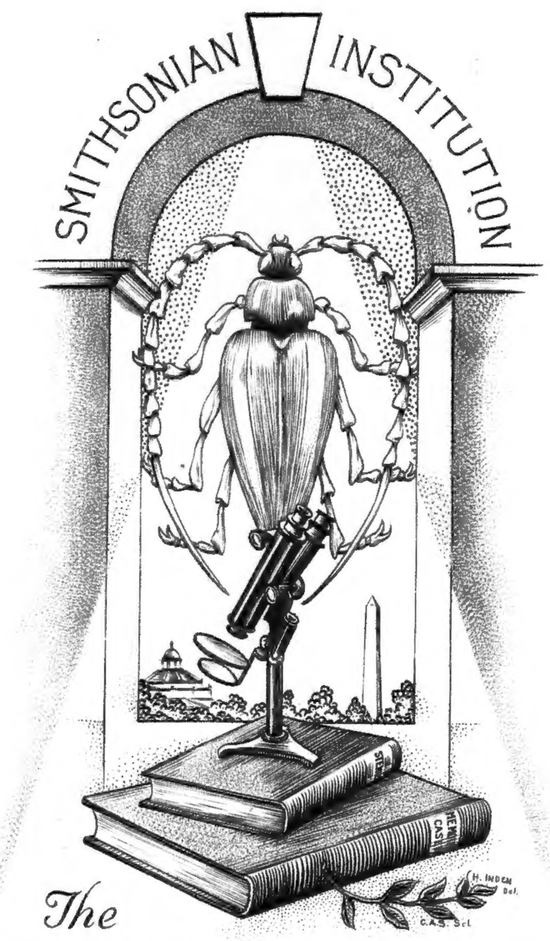





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# BIOLOGIA CENTRALI-AMERICANA.

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## ARACHNIDA

### ARANEIDEA AND OPILIONES.

VOL. II.

BY

FREDERICK O. PICKARD-CAMBRIDGE.

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1897–1905.

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PLATES.

# INTRODUCTION.

THE Central-American Araneidea, to judge from the collections made by the Editors of this work, do not present any very remarkable forms peculiar to the region, save, of course, so far as particular species are concerned. The collections before me include representatives of thirty-four families, the total number of genera being 280, and species 1111. It is probable that, after all, little more than the fringe of the fauna has been dealt with. Hundreds more, both genera and species, doubtless remain for the future collector to discover.

It will be interesting to discuss briefly the spider-fauna of the district in connection with the local distribution of the families, and also in its relation to the fauna of other continental regions. We at once find that whilst the vast majority of the species represented are peculiar to the Nearctic and Neotropical Regions, the genera are in many cases identical with those indigenous to such widely distant regions as the Mediterranean, Palæarctic, Oriental, Australasian, and Ethiopian.

We may dismiss at once the supposition that identical or even closely allied genera sprang into being sporadically in various regions permanently separated by physical barriers such as are furnished by thousands of miles of tempestuous ocean. Remarkable convergencies of character may occur here and there in organisms which have originated from entirely distinct primitive forms, but where such resemblances are very abundant we are driven to the conclusion that all these forms had common origins respectively, and that the fauna of the various regions presenting these likenesses must have passed freely from one to the other, at a date subsequent, at any rate, to the specialization of the various genera of which representatives are found in each.

In all probability only a very small number of species have been accidentally

introduced with the cargo carried by ships in recent times. Where the forms are identical in two widely separated regions, this will, no doubt, account for their presence in both; but the time required for the specialization of species precludes the idea that this agency is in any way responsible for forms representing merely closely allied species generically identical.

In order to find a satisfactory explanation of this startling resemblance between the fauna of Central America and that of the regions mentioned above, we shall have to take into consideration the geological history of the Araneidea, wherever possible, and also the past geographical history of the various continents as we now know them.

The Araneidea, of which the Mygalomorphæ are the modern exponents, date back at least as far as the Carboniferous period, when they were represented by forms of which the two species of *Liphistius* are the sole survivors. These differ considerably from the rest of the Mygalomorphæ, since their spinners lie in the middle of the underside of the abdomen, instead of at the apex. The earliest known Arachnomorphid spiders, however, in any way resembling those now living belong to the Oligocene times. At this period there existed many species, very similar to those occurring at the present time, whose remains have been found embedded in amber washed up on the shores of the Baltic Sea. Beyond these comparatively few examples, we know little of the extinct races of the Araneidea.

That the spiders comprised in the Central-American fauna could not during recent times have passed to and fro between that region and the great eastern continents will be obvious from a glance at the distribution of land and water at the present day. There are now in existence no land-connections of which an Arachnidal fauna could take advantage in order to pass from Africa, Australia, or the Palæarctic Region into North or South America. We can only conclude that at some period or other these now widely separated regions must have been linked together by land which has long since disappeared.

As illustrations of these resemblances in the fauna we may note the distribution of a few well-known forms. Taking, first, the Mygalomorphæ, which includes the most primitive Araneidea, we find the family Dipluridæ represented in Central America, the Antilles, Western Ethiopia, Madagascar, the Mediterranean Region, India, the

Oriental and Australian Regions, and New Zealand. But most significant is the fact that two genera, *Ischnothele* and *Evagrus*, both strongly represented in Central America, are found also in Madagascar and South Africa.

The Ctenizinæ, a subfamily of the Ctenizidæ, are found in the Southern States of North America, Central America, the northern districts of South America, the Antilles, the Mediterranean Region, Central Asia, Burmah, South China, and the Japanese Islands, as well as in New Guinea and some of the Polynesian Islands.

The *Avicularіæ*, of the family Theraphosidæ, are present throughout the Gulf States of North America, Central America and the Antilles, the whole of South America, the western districts of Ethiopia, the Mediterranean Region, India, and Burmah.

Amongst the Argyopidæ, the genus *Nephila* may have originated in the Oriental Region. Its western representative, however, is very widely distributed in the New World. There has been found, moreover, in the Florissant deposits of North America a fossil species of *Nephila* which is probably identical with the existing form mentioned above. If so, this would point to the vast time required in the differentiation of species, though naturally there would be great variation in this respect.

The genus *Filistata*, of the family Filistatidæ, is common to North, Central, and South America, the Antilles, Africa, and the Oriental Region. The members of this family possibly originated in the Ethiopian Region and spread westwards.

To take, now, a case where it is not improbable that the reverse has happened, we find numerous species and allied genera of the family Anyphænidæ in North and Central America, while but three or four species of one genus, *Anyphæna*, are found in the Palæarctic Region. The ancestors of these may have passed across from the parent stock before the Behring Sea bridge was broken down, and established themselves there during Oligocene times; for they are found in the beds of this period, in both Europe and North America. It has been well pointed out by Mr. R. I. Pocock * that this case is remarkably similar to that of the mammalian family Camelidæ, of which a number of genera existed in North America in Tertiary times, passed subsequently

* Proc. Zool. Soc. Lond. 1903, i. p. 367.

across into the Old World, where it is represented by the Camels, and into South America with the Llamas as representatives. The genera, however, of the Anyphænidæ still exist in the region of their origin, while those of the Camelidæ have died out.

These few instances must suffice for the present, but they will serve to indicate the various sources whence the Spider-fauna of Central America may have been derived.

The scheme of classification presented in the following pages does not differ materially from that usually adopted, except as regards the position of the Thomisidæ and Salticidæ. These families are here assumed to be allied to the Clubionidæ, and not linked with the Argyopidæ and Lycosidæ respectively, as previously placed by Authors.

The systematic position of the Cribellatæ is still one of the unsolved problems of Araneology. In the list of families drawn up in the Synoptic Table on pp. 541–544, the arrangement has been somewhat modified from that followed in the previously published text, as it was impossible to prepare this till the whole of the material had been studied.

As regards the actual identification of species, always a matter of great difficulty, we have fortunately had access to the types in the collection of the late Count Keyserling in the British Museum of Natural History. With these for reference, it has been possible to determine with some confidence a great many American forms.

In the "List of Identified Species," given by the Rev. O. Pickard-Cambridge in the Introduction to Vol. I., pp. xiii–xv, there are various names which will not be found quoted in the present volume. This apparent omission is due to difference of opinion as to the identification of the forms involved, or at least as regards those contained in the Godman and Salvin Collection.

The Opiliones, or Harvestmen, do not call for any special comment, and remarks on their geographical distribution, &c., are to be found on pp. 546–548. Nearly all the species (70) enumerated are treated as new, these Arachnids having been much neglected by zoologists.

The collections amassed by the Editors of this work have been mainly contributed

by Mr. F. Sarg, from Guatemala, whose coloured drawings of living specimens, and notes on their habits, have been of great assistance; by Mr. H. H. Smith, from Mexico, who also supplied us with an account of his observations on many of the species; and by Mr. G. C. Champion, from the State of Panama, whose collections of spiders were mostly made during the dry season, between November and March, 1883.

The fifty-four Plates, the drawings for which were made by myself and transferred to stone by Mr. E. Wilson, include figures of upwards of 900 species, with very many details of structure. Fifty-one Plates are devoted to the Araneidea and three to the Opiliones; twenty-four of the former are wholly or partially coloured.

F. O. P.-C.

*January*, 1905.

# ERRATA ET CORRIGENDA.

| Page | Line | |
|---|---|---|
| 2 | 12 | for *Acanthocurria* read *Acanthoscurria*. |
| 35 | 3 | for *Melodæus* read *Melodeus*. |
| 40 | 4 | for *A.* read *Agelena*. |
| 43 | 28 | for *coccineus* read *coccinea*. |
| 57 | 28 | *for* (♂) *read* (♂ ♀). |
| 85 | 38 | for *inclusa* read *inclusum*. |
| 94 | 10 | for *Aæna* read *Anyphæna*. |
| 121 | 6 | for *Ocypeta* read *Ocypete*. |
| 129 | 14 | *for* STEPHANOPSINÆ *read* STEPHANOPINÆ. |
| 140 | 7 | for *R. dubia* read *R. blanda*. |
| 152 | 28 | for *Thamisus* read *Thomisus*. |
| 156 | 18 | for *STEPHANOPSINÆ* read *STEPHANOPINÆ*. |
| 192 | 6 | for *longipalpis* read *longipalpus*. |
| 251 | 20 | *after* PHANIAS *add* gen. nov. |
| 256 | 11 | for *Ankoa* read *Anoka*. |
| 272 | 26 | for *retarius* read *retiarius*. |
| 288 | 4 | add to the references: Trans. Wisc. Acad. Sci. xiii. p. 301[3]. |
| 288 | 5 | add: NORTH AMERICA, Texas[3].—MEXICO[3].—BRAZIL[2 3]. |
| 339 | 14 | *for* HAMATALIVA *read* HAMATALIWA. |
| 339 | 21 | for *Hamataliva* read *Hamataliwa*. |
| 341 | 4 | |
| 348 | 35 | for *facile* read *facilis*. |
| 359 | 8 | add: NORTH AMERICA, Texas[1]. |
| 391 | 2 | *after* p. 256 *add* t. 39. figg. 9, 9 *a–d*, and the additional reference — *Phyllonethis trepida*, O. P.-Cambr. l. c. p. 307. |
| 391 | 10 | *after* Omilteme *add* and Amula. |
| 426 | 3 | for *scurrillis* read *scurrilis*. |
| 427 | 6 | for *montividensis* read *montevidensis*. |
| 437 | 19 | for *MEITNÆ* read *METINÆ*. |
| 445 | 10 | for *M.* read *P.* |
| 506 | 13 | for *Eustala* read *Epeira*. |
| 515 | 15 | *after* p. 253 *insert* t. 15. fig. 7. |
| 536 | 35 | *for* Tab. L. *read* Tab. LI. |

## ZOOLOGIA.

# Class ARACHNIDA.

## Order ARANEIDEA.

### Suborder OPISTHOTHELÆ, Pocock.

### Section MYGALOMORPHÆ, Pocock.

The Mygalomorphæ include all the spiders which possess four distinct lung-sacs as distinct from two lung-sacs and two tracheal stigmata of the Dysderidæ, &c., or two lung-sacs and one tracheal stigma of the other Arachnomorphæ.

Both in the number of lung-sacs retained, in the disposition of the spinning-mamillæ, and in the plane of the articulation of the mandibles, these spiders exhibit characters which suggest archaic arachnidal forms, of which *Liphistius* is perhaps the sole surviving link. In the Arachnomorphæ the second pair of lung-sacs have become tracheal stigmata and the plane of articulation of the mandibles has become oblique instead of horizontal, while the spinning-mamillæ, having achieved the utmost possible degree of distal migration, assume a closely grouped position at the apex of the abdomen.

So far as regards the distribution of the Mygalomorphæ over the earth's surface, one may say that, roughly speaking, they occupy the broad zone which lies between the fortieth parallel north and south of the Equator. The family Atypidæ, however, occurs much further north, extending almost up to the sixtieth parallel. Members of the family Ctenizidæ and also of the Dipluridæ extend further both in a northerly and southerly direction than do those of the family Theraphosidæ as defined in the present work, while along the northern shores of the Mediterranean numerous species of the former family occur where the latter is but feebly represented.

The Theraphosidæ, which include the largest known species, some of them measuring 9 inches in expanse of limbs, occur throughout Africa, Arabia, Hindostan, Burmah, Sumatra, Java, New Guinea, and other adjacent islands, and the east coast of Australia. In the Neotropical region they occur in the Southern States of North America, in

California, Mexico and the Central-American States, the Antilles, and the whole northern region of South America, gradually fading away southwards to the northern boundaries of Patagonia.

It is noteworthy, however, that in both a northerly and southerly direction these forms follow the coast-line and spread further than they do inland, as, for instance, in California on the north-west and Virginia on the east, in Chili on the south-west and below Uruguay on the south-east coast. In this respect the area of distribution of the Theraphosidæ is almost conterminous with that of the scorpions (*cf.* R. I. Pocock, 'Geographical Distribution of Scorpions').

Certain groups of genera belonging to this family are, of course, still further restricted to the equatorial regions. For though the genus *Eurypelma* extends as far north as Arizona, yet the genera *Acanthocurria*, *Avicularia*, *Xenesthis*, *Sericopelma*, &c. are not found north of Mexico, and indeed scarcely much further north than Panama.

On the whole, therefore, we may regard the Mygalomorphæ in general, and the family Theraphosidæ in particular, as essentially residents of the tropics. Certain forms, such as *Avicularia avicularia* in Brazil, and some species of *Eurypelma* in Central America, abound almost everywhere, but the majority of these huge spiders lurk in their dens in the depths of the primeval forest and are seldom met with.

The first family into which the Mygalomorphæ fall, the Ctenizidæ, comprises all those forms which are well known under the name "Trapdoor Spiders." They construct a silk-lined burrow in the ground, closed with a hinged door at the entrance. The members of the next family, the Theraphosidæ, though often making a cylindrical burrow in the soil, make no door at the entrance. They are not artificers, as their structure will prove. The Ctenizidæ have become highly specialized in the armature of their legs and mandibles in correlation with their habit of digging in the soil and constructing carefully adjusted doorways for the protection of their domicile. The Theraphosidæ, on the other hand, are rather specialized in the direction of rapidity of movement, their feet also being furnished with an exceedingly soft pad of claviform hairs, beautifully iridescent, which enables them to advance in stealthy silence on their prey, and to cross smooth horizontal surfaces with absolute confidence. These spiders, though they construct large cylindrical domiciles of silk in convenient situations, and in some genera burrow in the ground, yet make no door at the entrance, but rather extend the silk in an open trumpet-shaped mouth over the surrounding foliage and soil.

The third family, the Dipluridæ, again develop this trumpet-mouth still further, spreading the silk in a much wider circle over the surrounding soil or foliage, the snare and burrow, or tube at the back, thus assuming a very strong resemblance to the sheet-like snares of the family Agelenidæ, belonging to the section Arachnomorphæ—a resemblance, moreover, which is not alone confined to the snares, but is even shared to a greater or less extent by the constructors themselves; showing that similarity of

habit tends to similarity in structure without there being, necessarily, any near elationship between the forms.

When we enter upon the question of the distribution of particular groups and genera over wide areas and continents separated by broad seas, and whether certain definite forms are more or less confined to certain well-marked regions, we have first of all to bear in mind that the Mygalomorphæ do not lend themselves so greatly to the usual agents of distribution as do the Arachnomorphæ. The former usually live under ground and upon the ground, and the egg-cocoon is not so likely to be carried in cargoes of vegetables and plants, for instance, from one hemisphere to another. Neither are their young so likely to be conveyed by the winds high up in the air from island to island and continent to continent, clinging to the masts and rigging of ships. Indeed, I have never heard that the young of any of the Mygalomorphæ migrate in this manner, a common occurrence amongst the Arachnomorphæ. As an instance of the distributing agency of steamers and ships in the case of the latter we may note the occurrence of the huge *Heteropoda venatoria* (*regia*, Fabr.) in almost every seaport of the tropical world, and one of the most familiar house-spiders to dwellers in the tropics. They thrive amazingly in the warm holds and engine-rooms of the steamers, and have thus been transferred from port to port all over the world from their original headquarters, possibly somewhere in the oriental equatorial regions.

With the Mygalomorphæ, however, artificial or semi-natural distribution is far less likely to occur, and therefore we are more justified in concluding *à priori* that the forms occurring, for instance, in Hindostan, Burmah, and Borneo will be strikingly different from those to be met with in Central America and Brazil, than we should be in the case of the Arachnomorphæ.

And as a matter of fact such *à priori* judgment is, to a very great extent, borne out by actual comparison of the fauna from these widely separate regions; for compared with that of the western hemisphere we find the fauna of the Oriental region present striking differences.

It is of course too soon to speak with certainty on the matter, but with regard to the family Theraphosidæ, at all events, we may affirm that, as a rule, the Neotropical members differ in certain very definite characters from those of both the Ethiopian and Oriental regions. The genera are entirely distinct, and although some of them are supposed to be common to Central America and to the European Mediterranean region (e. g. *Chætopelma* and *Cratorrhagus*), I am not in a position at present to confirm this supposition.

The Theraphosidæ from the equatorial regions of the east possess in the stridulating-organs of both male and female a character which separates them at once from those of the Neotropical region. Curiously enough, however, in the case of the family Dipluridæ the position is almost exactly reversed, for in the Neotropical genera *Trechona*, *Melodeus*, and *Harmonicon* the stridulating-apparatus is present, while in members

from the Ethiopian and Oriental regions it is, so far as I have had opportunity of observing, entirely absent.

Passing on from these broader considerations of distribution and narrowing our investigations down to the Central-American and adjacent regions, with whose fauna we are more immediately concerned, we must also remark that so far, in the absence of sufficient data, we are not justified in speaking too positively as to the distribution of different families and genera.

The only further feature that strikes one in connection with distribution of the Mygalomorphæ in Central America is the small number of the Ctenizidæ and Dipluridæ and the greater number of the Theraphosidæ, especially of the genus *Eurypelma* and some allied forms. This feature, however, is probably due entirely to the fact that the trapdoor spiders are not easy to find, while the others force themselves more or less on the observation, and hence are more numerously represented in the bottles of the collector.

The number of representatives of this section hitherto taken is so exceedingly small in comparison with the enormous extent of the region that one cannot venture to speak with any great confidence on the subject of the proportional distribution of different families and genera.

In conclusion, however, it may be remarked that one genus only occurs north of the fortieth parallel, viz. *Euagrus* (*rubricularis*, Sim.), which has been recorded by Dr. Geo. Marx from Idaho. *Bothriocyrtum californicum*, O. P.-Cambr., is reported as occurring in Utah, and *Myrmeciophila atkinsonii*, Sim., in Virginia. *Eurypelma* does not apparently occur further north than Arizona and California (where forms are apt to creep up the coast-line), New Mexico, and Texas. *Tapinauchenius* has been recorded from as far north as "Indian Territory" by Dr. Marx, which, if the identification be correct, is somewhat surprising; while *Avicularia*, *Sericopelma*, and *Xenesthis*, genera essentially equatorial, have not been recorded further north than Panama.

## MYGALOMORPHÆ, Pocock.

The plane of the joint of the mandible with the carapace nearly vertical, the fang closing almost directly backwards. Four lung-sacs, the posterior widely separated, close behind the anterior, with distinct transverse opercula. Spinning-mamillæ four, rarely six.

This large and very distinct section may conveniently be subdivided into more or less compact and natural families, though of course intermediate forms occur in most cases, which partaking of the characters of two families cannot be classed with either. The families represented in Central America may be briefly characterized as follows:—

A. Tarsi without claw-tufts; inferior claw nearly always distinct.

*a*. Base of mandible furnished at the apex with a more or less well-developed rastellum. Spinning-mamillæ short, stout, and closely situate at the base . . . . . CTENIZIDÆ, Thor.

*b*. Base of mandible without any rastellum at the apex. Spinning-mamillæ long, slender, widely situate at the base . . . . . DIPLURIDÆ, Thor.

B. Tarsi with claw-tufts; inferior claw hardly ever present (sometimes in immature forms and in some males on tarsus iv.). . . . . THERAPHOSIDÆ, Thor.

## Fam. CTENIZIDÆ.

This very large and interesting family, quite distinct, as a rule, in general appearance and character from either the Theraphosidæ or the Dipluridæ, comprises all those species generally known as "Trapdoor Spiders." Their habit, as distinct from those of the other two families, is to construct a more or less perfect movable lid, with which the long silk-lined burrow, formed in the soil, can be securely closed at pleasure. The Theraphosidæ, on the other hand, while constructing a silken tube either in the ground or crevices in tree-trunks, make no door of any kind. The Dipluridæ resemble this last family in the general nature of their habitat, but the entrance of the burrow is surrounded with a large flat sheet of webbing, very similar to the domiciles of the family Agelenidæ, of the section Arachnomorphæ.

The family Ctenizidæ may itself be conveniently divided into several subfamilies, of which, however, two only are represented (so far, that is to say, as present researches warrant one in the assertion) in the Central-American fauna, namely the Actinopodinæ and the Ctenizinæ, which may be characterized thus:—

A. Coxa of pedipalp scarcely longer than broad. Eyes widely separate, not situate upon a raised prominence . . . . . ACTINOPODINÆ.

B. Coxa of pedipalp distinctly longer than broad. Eyes more or less closely grouped, and situate on a decidedly raised prominence . . . . . CTENIZINÆ.

### Subfam. *ACTINOPODINÆ*.

The two genera of this subfamily may be distinguished thus:—

A. Thoracic fovea strongly procurved, not sinuous. Femur iii. not gibbous on the posterior side. Apex of labial plate and anterior side of the coxa of pedipalp studded with numerous cuspules. Apical margin of protarsus iv. without a regular row of spines on anterior apical margin. Tarsus iv. with a close group of numerous spines on anterior side. Anterior central eyes four diameters distant from posterior centrals, and six diameters from anterior laterals . . . . . ACTINOPUS, Perty.

B. Thoracic fovea recurved, transverse, sinuous. Femur iii. gibbous on the posterior side. Labial plate not studded with cuspules. Coxa of pedipalp not studded with cuspules. Protarsus iv. with a regular row of 4–6 long spines on anterior apical margin beneath, beside 7–8 scattered spines on sides. Tarsus iv. without any spines on anterior side. Anterior central eyes one and a half diameters distant from posterior centrals, rather over three diameters from anterior laterals . . . . . NEOCTENIZA, Poc.

## ACTINOPUS.

*Actinopus*, Perty, Del. Anim. Art. Bras. p. 198 (1833).

Type *Actinopus tarsalis*, Perty.

Tarsi without ungual tufts, 3-clawed. Tarsi and protarsi not scopulate. Eyes widely separate, not occupying a raised prominence. Apex of coxa of pedipalp produced on anterior side to form a conical prominence. Sternum deeply impressed behind labial plate. Thoracic fovea strongly procurved, not sinuous. Femur iii. incrassate, but parallel-sided. Labial plate elongate, coniform, its apex studded with numerous (10–15) cuspules. Coxa of pedipalp studded with numerous cuspules on anterior half. Protarsus iv. with 7 or 8 irregularly scattered spines on anterior side. Tarsus iv. with 9–10 closely grouped short spines on anterior side. Mandibles with rastellum.

### 1. Actinopus robustus.

*Pachyloscelis robustus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. p. 93, t. 12. figg. 5, 5 *a–d* (♀)[1].

Type in coll. Godman & Salvin.

*Hab.* Panama, Veraguas (*Boucard*[1]).

I am unable, from the description only, to distinguish the females of this form from *A. scalops*, Sim., though, in any case, it is not possible to decide the matter without comparing the males. Probably the females of these closely allied forms are themselves inseparable, and from what I have observed in comparing the individuals of other forms of this genus from various localities I should quite expect this to be the case. It is of course highly possible, after a very careful comparison of numerous examples of all these forms, that some constantly variable character may be found in the females whereby the different forms may be recognized, but so far no such character has been discovered.

The followings points may be noted as probably of specific value:—

♀. Patella iii. with a regular row of 7 short spines and 2–3 irregularly placed spines on the anterior apical margin; posterior side with an irregular row of 10 spines and numerous irregularly placed spines. Tibia iii. with a regular single row of 12–14 spines on the anterior apical margin, becoming posteriorly irregular and more numerous.

In *A. wallacei* (from Brazil) tibia iii. has a number of irregularly placed spines along the anterior apical margin, instead of a single regular row.

## NEOCTENIZA.

*Neocteniza*, Pocock, Ann. & Mag. Nat. Hist. (6) xvi. p. 193 (1895).

Type *N. sclateri*, Poc. (♀) loc. cit. p. 194, t. 5. figg. 3, 3 *a*, *b*.

Tarsi without ungual tufts, 3-clawed. Tarsi and protarsi not scopulate. Eyes widely separate, not occupying a raised prominence. Apex of coxa of pedipalp produced on the anterior side into a conical prominence. Sternum deeply impressed behind labial plate. Thoracic fovea transverse, recurved, slightly sinuous. Femur iii. incrassate, especially on the posterior side. Labial plate truncate, coniform, its apex set with simple hairs only, no cuspules. Coxa of pedipalp not studded with cuspules. Protarsus iv. with 4–6 long spines, in a row, on anterior apical margin beneath, and 7–8 other irregularly scattered spines on anterior and posterior sides. Tarsus iv. without any spines on anterior side. Mandibles with rastellum.

*Females.*

A. Central anterior eyes nearly four diameters from lateral anteriors. Patella iii. with apical submarginal fringe of 9–10 short spines; posterior apical margin with three short spines. Anterior dorsal area with upwards of 20 short spines. Dorsal area of tibia iii. with upwards of 25 short spines. Protarsus iii. with two rows of 10—10 and upwards short spines. Spines on margins of protarsus i. 15—12 on the inner and outer sides respectively. Tibia i. with spines 6—7 on the inner side and outer side respectively (from beneath) . [*sclateri*, Poc. (Demerara).]

B. Central anterior eyes two diameters only from lateral anteriors. Patella iii. with apical submarginal fringe of 7 short spines; posterior apical margin without any short spines. Anterior dorsal area with 9–10 short spines. Dorsal area of tibia iii. with upwards of 11 short spines. Protarsus iii. with two rows of 6—6 spines. Spines on margins of protarsus i. 7—5 on the inner and outer sides respectively. Tibia i. with 2 spines only on ventral surface, beneath; no marginal spines . . . . . *mexicana*, sp. n.

### 1. **Neocteniza mexicana**, sp. n. (Tab. I. figg. 6, 6 *a*, *b*.)

Type in coll. Godman & Salvin.

Carapace yellow-brown, legs paler; abdomen dull pink-brown, pale beneath; spinners pale yellow.

♀. Length 15 millim.

*Hab.* Guatemala (*Sarg*).

There is no necessity for recapitulating the characters, which are all incorporated in the generic and specific diagnoses. The species is obviously closely allied to *N. sclateri*, Poc., but, unless the great difference in the number of spines signalized above be nothing more than characteristic of different degrees of maturity, it is decidedly distinct.

It is very interesting to be able to confirm the characters of this genus, and I am glad to have the opportunity of figuring the more important of them. The form undoubtedly belongs to that group of the Ctenizidæ for which I retain the subfamily name Actinopodinæ given by Simon.

## Subfam. *CTENIZINÆ*.

This subfamily may be divided into three groups as follows:—

Eyes not in two groups, forming only a single more or less closely situated group.

I. Tibia iii. strongly compressed at the base on the upperside . . . . . Pachylomereæ.

II. Tibia iii. not compressed at the base.

*a*. Tarsi not scopulate, but set with numerous spines in the females . . Ctenizeæ.

*b*. Tarsi i. and ii. scopulate in both sexes . . . . . Cyrtaucheniæ.

## Group PACHYLOMEREÆ.

The two genera falling into this group, of which examples are recorded from Central America, are *Chorizops* and *Pachylomerus*, *Chorizops* having been instituted by Ausserer for the reception of a form called by Koch "*Actinopus loricatus*." What this particular species may be we cannot of course say positively in the absence of types, except that it approaches, in all probability, the genus *Cyclocosmia* of Hentz.

Assuming this to be the case, we may therefore characterize the two genera thus:—

1. Abdomen enlarged, truncate, and marked with very distinct muscular depressions behind . . . . . CHORIZOPS, Auss.
2. Abdomen not enlarged, truncate, or marked with strongly pronounced muscular depressions behind . . . . . PACHYLOMERUS, Auss.

### CHORIZOPS.

*Chorizops*, Ausserer, Verh. zool.-bot. Ges. Wien, xxi. p. 144 (1871).

Type *Chorizops loricatus* (C. Koch).

#### 1. Chorizops loricatus.

*Actinopus loricatus*, C. Koch, Die Arachn. ix. p. 99, fig. 752 (1842) [1].

*Chorizops loricatus*, Ausser. Verh. zool.-bot. Ges. Wien, xxi. p. 144 (1871) [2]; Simon, Act. Soc. Linn. Bord. xliv. p. 327 (1892) [3].

*Hab.* MEXICO [1].

This spider, judging from Koch's figure, closely resembles *Cyclocosmia truncata*, Hentz, but the position of the eyes would preclude the possibility of identity. It is not possible, however, to say anything more definite without seeing the types.

### PACHYLOMERUS.

*Pachylomerus*, Ausserer, Verh. zool.-bot. Ges. Wien, xxi. p. 145 (1871).

Type *P. nidulans* (Fabr.).

Tarsi 3-clawed, no ungual tuft (♂). Protarsi and tarsi i. and ii. regularly, thinly, but entirely scopulate. Tibia iii. compressed at the base above, incrassate at the apex. Eyes forming a single group. Mandible with apical rastellum. Coxa of pedipalp not produced into a conical prominence at the anterior apical angle.

#### 1. Pachylomerus pustulosus.

*Pachylomerus pustulosus*, Becker, Compt. rend. Soc. Ent. Belg. xxii. p. cxl (Oct. 1879) [1]; E. Simon, Act. Soc. Linn. Bord. xliv. p. 327 (1892 [2].

*Hab.* MEXICO, Guanajuato (*Van Bruyssel* [1]).

This and the following species are unknown to me.

### 2. **Pachylomerus rugosus.**

*Pachylomerus rugosus*, Karsch, Zeitschr. für ges. Naturw. liii. p. 388 (1880) [1]; E. Simon, Act. Soc. Linn. Bord. xliv. p. 327 (1892) [2].

*Hab.* Costa Rica [1].

### 3. **Pachylomerus zebrinus,** sp. n. (Tab. I. figg. 8, 8 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin.

*Adult male*, length 10 millim.

Carapace and mandibles deep shining black. Sternum, mouth-parts, and legs dull yellow-brown, paler towards the apex. Pedipalps similarly coloured. Abdomen dark brown-black, with a pair of pale dorsal spots behind each shoulder, followed to spinners by five narrow transverse recurving pale bars.

Carapace finely and entirely granulate. Thoracic fovea strongly procurved. Labium and coxæ of pedipalp studded with several cuspules. Tibia iii. three and a half times longer than broad, slightly impressed at the base above, armed at the apex on the outer, inner side and above with upwards of ten short stout spines. Protarsus iii. spinose above, armed at the apex above with four rather longer stouter spines.

*Pedipalp* similar in general form to that of others of the genus. Tibia at least four times longer than broad. Bulb globular, bilobate, its apex very long, sinuous, and filiform, directed abruptly outwards. Tarsus iv. with five stout spines on the outer side at the apex, a not oblique row of bristles on the inner side.

*Hab.* Guatemala (*Sarg*).

A single adult male.

## Group **CTENIZEÆ.**

There is one genus only of this group to which species taken in the Central-American region are referable, viz. *Bothriocyrtum*, Sim. This genus, as well as the others belonging to the group, can be recognized by the absence of the tarsal scopula in the female sex. The type of *Bothriocyrtum* is *B. californicum*, O. P.-Cambr., originally described under *Cteniza*, from California.

## BOTHRIOCYRTUM.

*Bothriocyrtum*, E. Simon, Act. Soc. Linn. Bord. xlix. p. 314 (1891).

### 1. **Bothriocyrtum fabrile.** (Tab. I. figg. 1, 1 *a–e*, ♀.)

*Bothriocyrtum fabrile*, E. Simon, Act. Soc. Linn. Bord. p. 327 (♀) [1].

Type, ♀, in coll. E. Simon, Paris.

*Hab.* Mexico, Santiago (*Forrer* [1]).

The type of this species has been kindly submitted to me by M. Simon. It is distinguished from other allied genera from the Palæarctic and Palæotropic regions by the almost horizontal clypeus, which is twice as broad as the transverse diameter of the anterior laterals. The lateral anteriors and lateral posteriors are separated by a space much less than the longitudinal diameter of the latter, but equal to the transverse diameter. Protarsi i. and ii. bear a few spines beneath, in addition to the

lateral spines. Tibiæ iii. and iv. are armed on the outer side with numerous irregularly set spines. Anterior row of eyes straight. Ocular area small, transversely narrow and parallel on each side. Sternum with two sigilla in the centre.

## Group **CYRTAUCHENIEÆ.**

The spiders falling into the group Cyrtauchenieæ may be distinguished, first, from the Idiopeæ by the eyes forming one group instead of two; from the Pachylomereæ by the normal form of the tibia of the 3rd pair, not impressed at the base; from the Ctenizeæ by the thick scopula beneath the tarsi, and often the protarsi of the first two pairs of legs; from the Aporoptycheæ by the short and semi-globose form of the terminal joint of the mamillæ; and, lastly, from the Nemesieæ by the strongly procurved semilunar form of the thoracic fovea.

The group is represented in Central America by several genera, *Eutychides*, *Enrico*, *Favila*, and *Eucteniza*. The first mentioned of these genera alone has more than one species recorded—two from Central America and one from the Antilles. *Favila* and *Eucteniza* are, I believe, referable to the same genus, the name *Eucteniza* having priority. *Enrico* is, I suspect, a good genus, for the anterior margin of the posterior pair of sigilla is less than half the length of the sternum from the base of the labium. These sigilla are also more elongate and attenuate posteriorly than is the case in either *Favila* or *Eucteniza*.

The following table briefly summarizes the distinguishing characters of the three genera which are recognizable out of the four recorded:—

A. Anterior tarsal claws (♀) with five long teeth besides a large bifid basal tooth. Palpal claw with six short teeth. Sternum not much longer than broad. Patella iv. not armed on outer side at base with cuspules. Legs clothed with short thickly set hairs. Tarsus iv. with a thick tuft of hair beneath. Scopula beneath protarsi and tarsi i. and ii. (♀) very thick. — EUTYCHIDES, E. Sim.

B. Anterior tarsal claws (♀) with, at most, two (*Eucteniza*) teeth besides a large bifid basal tooth. Palpal claw with a large bifid basal tooth, and a single tooth towards apex, on inner side. Sternum considerably longer than broad. Patella iv. armed at base on outer side with cuspules. Legs very sparsely clothed with short hairs. Tarsus iv. without a thick tuft of short hair beneath. Scopula beneath protarsi and tarsi i. and ii. (♀) less dense (in *Eucteniza* very slight).

*a*. Posterior sternal sigilla elongate-piriform, attenuate behind; their anterior margin extending more than halfway from the base of the sternum to the base of the labium. Labial plate more elongate-oval . . . . . — ENRICO, O. P.-Cambr.

*b*. Posterior sternal sigilla short-piriform, less attenuate behind; their anterior margin extending less than halfway from the base of the sternum to the base of the labium. Labial plate more semicircular. — EUCTENIZA, Auss.

Of these three genera, the first is very distinct, so far as one is able to judge from the type, *E. aurantiacus*, Sim.,—the toothing of the tarsal claws, consisting of a large bifid basal tooth and five simple teeth, being very different from the single bifid tooth found in the females of *Eucteniza* and *Enrico*. It must, however, be remembered that in the males of these and many other genera of this family the teeth of the tarsal claws are much more numerous, forming a thick comb of long clustered denticles at the base, followed by a row of simple teeth, and also that the coxæ of the pedipalp are not spinose in the males as they are in the other sex. It must be further noted that in the males (so far as I have been in a position to observe) the tarsi only are scopulate. I am unable to regard *Favila relatus*, O. P.-Cambr., as generically distinct from *Eucteniza mexicana*, Auss.,—though one is not justified in considering it specifically identical, the more so since the type (♀) of the latter, which is now before me, is most probably immature. The sternal sigilla of these two forms are similar in character and position. *Enrico mexicanus*, O. P.-Cambr., however, appears to be quite distinct from the other two types in the character of the sigilla on the one hand and the armature of the legs on the other.

It is not possible to be quite confident over these points of classification in the absence of material.

## EUTYCHIDES.

*Eutychides**, E. Simon, Ann. Soc. Ent. Fr. 1888, p. 213.

### 1. **Eutychides aurantiacus.** (Tab. I. figg. 3, 3 *a–f*, ♀.)

*Eutychides aurantiacus*, E. Simon, Ann. Soc. Ent. Fr. 1888, p. 213 (♀)[1]; Act. Soc. Linn. Bord. xliv. p. 328 (1892)[2].

Type, ♀, in coll. E. Simon, Paris.

*Hab.* Mexico[1 2].

This fine species, of which the type has been submitted to me for examination by M. Simon, can readily be recognized by the characteristic sigilla on the sternum and the golden-yellow hairs on the abdomen.

### 2. **Eutychides dugesi.**

*Eutychides dugesi*, E. Simon, Ann. Soc. Ent. Fr. 1888, p. 214[1]; Act. Soc. Linn. Bord. xliv. p. 328 (1892)[2].

Type, ♀, in coll. E. Simon, Paris.

*Hab.* Mexico (*Dugès*[1]).

I have not seen a specimen of this species.

* Misprinted *Entychides*.

## ENRICO.

*Enrico,* O. P.-Cambridge, Biol. Centr.-Am., Arachn. Aran. i. p. 157 (1895).

### 1. **Enrico mexicanus.** (Tab. I. figg. 7, 7 *a*, *b*, ♀.)

*Enrico mexicanus,* O. P.-Cambr. loc. cit. p. 157, t. 19. figg. 8, 8 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin.

*Hab.* MEXICO, Atoyac in Vera Cruz (*H. H. Smith*[1]).

## EUCTENIZA.

*Eucteniza,* Ausserer, Verh. zool.-bot. Ges. Wien, xxv. p. 148 (1876).
*Favila,* O. P.-Cambridge, Biol. Centr.-Am., Arachn. Aran. i. p. 156 (1895).

### 1. **Eucteniza mexicana.** (Tab. I. figg. 2, 2 *a–f*, ♀.)

*Eucteniza mexicana,* Auss. loc. cit. p. 149, t. 5. figg. 8, 9[1]; E. Simon, Hist. Nat. Araign. p. 110 (1892)[2]; Act. Soc. Linn. Bord. xliv. p. 328 (1892)[3].

Type, ♀, in Brit. Mus., ex coll. Keyserling.

Measurements of type:—Total length 18·75 millim. Carapace 5·5×4; ceph. area 4; stern. 3·5×2·5; pedipalp 9. Legs: i. 13; ii. 5; iii. —; iv. 14.

*Legs.* Protarsi and tarsi i. and ii. scopulate beneath. Pedipalp: tarsus with single claw, unidentate, with 6–7 irregular spines beneath; tibia with 3 spines towards apex on inner side. Tarsus i. with 2 small spines towards apex, beneath; protarsus i. with 6 irregular spines beneath (3 at apex, 2 on outer side, 1 on inner side). Tarsus ii. with 2–3 small spines towards apex, beneath; protarsus ii. with 6 irregular spines beneath (3 at apex, 2 on outer side, 1 on inner side). Tibiæ i. and ii. without any spines. Patella iii. with numerous spines above and a row along apical margin, with a row also on posterior side. Tibia iii. with 6 spines on anterior side and a row of numerous spines along apical margin; 2 long spines and 3 on apical margin beneath. Protarsus iii. with 6–7 spines on each side, 3 spines and 4 on apical margin beneath. Tarsus iii. with 1–2 small spines on anterior side and 1–2 beneath. Femur iv. with 4 spines on apical margin above; patella iv. with 6–7 spines on anterior side towards base. Tibia iv. with no spines above or on sides, 3 bristles beneath. Protarsus iv. with no spines above, with 5 spines beneath, and 3 longer ones on apical margin beneath. Tarsus iv. with 7–8 short spines beneath.

*Eyes.* Set in two rows, equal in width; anterior procurved, posterior recurved. Anterior centrals $\frac{3}{4}$ of a diameter apart, one full diameter from laterals. Laterals larger, their longitudinal diameter $\frac{3}{4}$ greater than diameter of anterior centrals. Central posteriors circular-piriform, over four diameters apart, one-quarter diameter from centrals, the same from lateral posteriors; diameter of lateral posteriors slightly greater than that of central posteriors, themselves situated within $\frac{1}{2}$ a diameter of lateral anteriors. Central ocular quadrangle two and a half times broader than long, anterior side much narrower than posterior. Anterior centrals one diameter from anterior margin; laterals one-quarter a diameter from anterior margin.

*Carapace* one-half longer than broad, narrowed behind; cephalic area two-thirds of carapace, well marked, convex, broad in front, gradually narrowed to central fovea, which is deep and strongly procurved; thoracic indentations deep.

*Mandibles* stout, flat on inner side, externally and dorsally convex. Apical sixth of basal joint armed with numerous cusps on inner margin, becoming longer and stouter at apex, five especially longer on inner apex, others smaller along apical margin, none on dorsal apical disc. Inner margin of fang-groove with 9 stout denticles, outer margin with 14 small denticles, irregularly situate.

*Sternum* (including labial plate) not quite twice its breadth; attenuate in front, broader behind. The point of its greatest width opposite coxæ iii.; from this point abruptly narrowed and terminating between coxæ iv. in a point. One pair of sigilla distinctly marked opposite coxæ ii.; another, scarcely visible,

opposite coxæ i.; base of labial plate defined by a deep procurved impression. Centre of sternum with a very shallow quadrate impression just behind the middle.

*Coxa of pedipalp* twice its breadth, anterior distal angle slightly produced, entirely but sparingly studded with minute cuspules over anterior side of disc, more concentrated at anterior basal angle. Labial plate as long as broad, semicircular, studded towards apex with 6 or 7 cuspules.

*Tarsal claws.* Pedipalp with one claw, having one small denticle towards apex and a large bifid basal tooth. Legs with three tarsal claws, inferior simple, superiors with one or two smaller denticles towards apex and a larger bifid basal tooth *.

*Hab.* Mexico [1].

The type, from which the above fresh description is taken, appears to be immature; this would account for the very scanty tarsal scopula.

### 2. Eucteniza relata.

*Favila relatus,* O. P.-Cambr. Biol. Centr.-Am., Arachn. Aran. p. 156, t. 19. figg. 6, 6*a*–6*f* (♂) [1].

Type, ♂, in coll. Godman & Salvin.

*Hab.* Mexico, Amula in Guerrero, 6000 feet (*H. H. Smith* [1]).

This species, of which a single specimen, a male, was obtained by Mr. H. H. Smith, is undoubtedly congeneric with *Eucteniza mexicana*, Auss., so far as a careful comparison of the types justifies one in concluding.

## Fam. THERAPHOSIDÆ.

The sense in which I use this family name, as distinct from the Ctenizidæ and Dipluridæ, is one in which all the groups embraced by M. Simon [Hist. Nat. Ar. p. 132 (1892)] in his subfamily Aviculariinæ are included, thus covering the whole Neotropical and Oriental regions.

The family will in all probability fall eventually into various natural subfamilies, of which the only one that here concerns us, the Theraphosinæ, may be regarded as including all the closely allied genera indigenous to the Neotropical region. The principal of these are *Eurypelma*, *Avicularia*, *Tapinauchenius*, *Homœomma*, *Lasiodora*, *Xenesthis*, *Sericopelma*, *Sphærobothria*, *Metriopelma*, *Crypsidromus*, &c.

There appears to be no sufficient reason, so far as the material to hand enables one to judge, for drawing very hard-and-fast lines between the numerous forms included in the subfam. Theraphosinæ, based on the division of the tarsal pad or the presence of the femoral pad, and certainly not on the extent of the scopulation of protarsus ii. (*Homœomma*).

I am so far unable to satisfy myself that either *Ischnocolus*, Auss., *Chætopelma*, Auss., or *Cratorrhagus*, Simon, whose types are Eastern forms, have really any genuinely congeneric representatives in the West. So much confusion has arisen owing to a character, found commonly in immature forms, having been seized upon as

* I am unable to confirm by careful examination of the type specimen the figures of the tarsal appendages given by Ausserer.

of sectional value, including several distinct genera, that it is necessary, considering the difficulty of distinguishing mature from immature forms in this suborder, to be very cautious of including forms in the same genus on the grounds of a similarity in this respect. Caution is still more necessary in the case of forms from widely separate regions of the world.

## Subfam. *THERAPHOSINÆ.*

A. Femur iv. with a distinct thick pad on the inner side.
  *a*. Tibia i. (♂) with no spurs at the apex beneath.
    Protarsus iv. with no thick scopula on the inner side . . SERICOPELMA, Auss.
  *b*. Tibia i. (♂) with two short spurs at the apex beneath.
    Protarsus iv. with a thick scopula on the inner side . . . XENESTHIS, E. Simon.

B. Femur iv. without distinct thick pad on the inner side or only a pair of hairs similar to those on the other segments of the legs.
  i. Tibiæ and protarsi iii. and iv. without spines, or at most one or two.
    *a*. Carapace more or less convex, anterior row of eyes strongly procurved . . . . . AVICULARIA, Lam.
    *b*. Carapace more decidedly flat, anterior row of eyes straight . . . . . TAPINAUCHENIUS, Auss.
  ii. Tibiæ and protarsi iii. and iv. with numerous spines.
    *a*. Scopula beneath the tarsi not divided longitudinally by a narrow band (or row) of setæ or spines.
      *a**. Tibial spurs more or less long and slender. Apex of labium studded with numerous cuspules, closely clustered.
        1. Thoracic fovea normal, transverse, concave . . . EURYPELMA, C. Koch.
        2. Thoracic fovea abnormal, circular, with central conical development . . . . . SPHÆROBOTHRIA, Karsch.
      *b**. Tibial spurs very short and stout. Apex of labium studded with a few scattered cuspules only . . . PARAPHYSA, E. Simon.
    *b*. Scopula beneath the tarsi divided longitudinally by a band (or row) of spines or setæ.
      i*. Scopula divided by a row of fine setæ.
        * Scopula beneath tarsus iv. only so divided.
          *aa*. Tibia i. (♂) with two long spurs at the apex beneath . . . . . HAPALOPUS, Auss.
          *bb*. Tibia i. (♂) with one spur only, or none, at the apex beneath.
            1. Tibia i. (♂) with one spur only (spinigerous) on the inner side at the apex beneath and several (7–8) spines on the outer side. Protarsus ii. scopulate to the base . . . . . SCHIZOPELMA, gen. nov.

2. Tibia i. (♂) without spurs, but with two pairs of spines at the apex beneath. Protarsus ii. scopulate on the apical half only . . . . METRIOPELMA, Becker.

** Scopula beneath the tarsi iii. and iv., or i., ii., iii., and iv., so divided . . . . . (No Central-American genera yet discovered.)

ii*. Scopula divided by a row of spines. Scopula of tarsi i., ii., iii., & iv. so divided . . . . . ACANTHOPELMA, gen. nov.

## SERICOPELMA.

*Eurypelma,* subg. *Sericopelma,* Ausserer, Verh. zool.-bot. Ges. Wien, xxv. p. 195 (1875).

Femur iv. with a thick scopuliform pad on the inner side. Tibia i. with a few spines only (no spurs) at the apex beneath. Tibia and patella i. equal in length to tibia and patella iv. Carapace longer than broad.

The above diagnosis is based on spiders which evidently belong to this genus as subsequently characterized by Simon. His diagnosis of the eye-position, however, does not apply: "Oculi antici intervallum mediorum oculo angustius"; neither does the diagnosis where he separates *Theraphosa* and *Sericopelma* from *Acanthoscurria*: "Oculi antici in lineam valde procurvam (margine antico mediorum pone marginem posticum lateralium sito)," for the former; and for *Sericopelma*: "Oculi antici in lineam minus procurvam (margine antico mediorum ante centrum lateralium sito)." This latter characterization applies exactly to the four males before me from Chiriqui, the same locality from whence Simon's specimen, which he identifies as *Sericopelma rubronitens*, Auss., was obtained.

Either this characterization of the eye-position is not of generic importance, but merely specific, or even perhaps individual, as I strongly suspect, or it is of generic importance. In the latter case the four males from Chiriqui would belong to a new genus between *Acanthoscurria* and *Sericopelma*, differing from the former by the absence of spurs beneath tibia i. and from the latter by the eye-position.

I do not, however, believe that these males are generically distinct from those of *Sericopelma*, and I therefore diagnose the genus by the same characters as those given by Simon, but without laying stress on the eye-position, for I fully expect Simon's male from Chiriqui and mine from the same place to belong at any rate to the same genus, even if they are not specifically identical.

### 1. **Sericopelma communis,** sp. n. (Tab. I. figg. 11, 11 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin.

♂. Total length 70 millim. Carap. 27·25 × 23·25; ceph. area 17. Legs: i. 94; ii. 88; iii. 88; iv. 106. Pat.+tib. i. 29; iv. 29. Prot. i. 17; iv. 26. Oc. tumulus 3·5 × 3.

♂. Body and legs entirely coffee-brown, the carapace, femora, abdomen, and lower parts darker. The patellæ and tibiæ of all four pairs of legs with the normal double lines paler russet-brown. Protarsi i. and ii. with a sinuous bar of russet-brown passing from the outer side at the base to the inner side towards the apex. Legs of first two pairs clothed with short russet-brown hairs, of third and fourth pairs with

longer russet-brown hairs. Anterior and lateral margins of the carapace fringed with rufous hairs. Abdomen clothed with long rufous hairs.

*Carapace* a little longer than broad. Central fovea small, transverse-oval, straight. Ocular tumulus a little broader than long. Anterior row procurved; anterior margin of centrals cutting the middle of laterals, at least one diameter apart (often more), scarcely one diameter to laterals. Longitudinal diameter of laterals greater than diameter of centrals. Sternum longer than broad (12+9), not including labial plate; the latter at the apex, as well as the base of the coxa of pedipalp on the anterior basal angle, studded with numerous cuspules. Protarsi i. and ii. scopulate to the base, and of ii. spinose at the base. Protarsus iii. scopulate on the apical half, of iv. not scopulate, or very slightly so at the apex. Femora, tibiæ, and protarsi more or less spinose, especially iii. and iv. Femur iv. with thick scopulate pad on inner side. Tibia i. with one spine on the outer side and two or three spines on the inner side at the apex beneath. No spurs.

*Pedipalp.*—Tibia with 5–6 spines on the inner side. Bulb from outer side piriform, truncate and broadly dilate and spatuliform at the apex. Margins cariniform and raised, the apex terminating in a short stout tooth. One central sinuous carina only at the back.

*Hab.* Panama, Chiriqui (*Champion*).

The type of this species, together with three other specimens, all adult males, were taken by Mr. Champion in Chiriqui. Unfortunately, no females were found. It is highly possible that this species is identical with *Sericopelma rubronitens*, Auss., or *Theraphosa panamana*, Karsch, or with both; but I believe it to be distinct from the form which Simon regards as identical with the former. Since no satisfactory conclusion can be arrived at save by an examination of the specimens involved, I have described the form taken by Mr. Champion as a new species.

### 2. Sericopelma rubronitens.

*Sericopelma rubronitens*, Auss. Verh. zool.-bot. Ges. Wien, xxv. p. 195, t. 7. fig. 37[1]; E. Simon, Act. Soc. Linn. Bord. xliv. p. 332[2].

Type, ♂, in Zool. Hofmuseum in Wien.

*Hab.* Panama [1] [2], Chiriqui [2].

### 3. Sericopelma panamana.

*Theraphosa panamana*, Karsch, Zeitschr. f. ges. Naturw. liii. p. 845 (1880) [1].

*Hab.* Panama, Chiriqui (*Ribbe, in Mus. Berol.*[1]).

Simon regards this as identical with *S. rubronitens*, Auss., since it was taken in the same locality.

Without examining the specimen I cannot offer an opinion. Karsch's descriptions are inadequate.

## XENESTHIS.

*Xenesthis*, E. Simon, Act. Soc. Linn. Bord. xliv. p. 332 (1890).

Femur iv. with a thick scopuliform pad on the inner side. Tibia i. (♂) with two stout spurs on the inner side at the apex. Protarsus iv. thickly scopulate on the inner side. Tarsi not divided by a row of setæ.

### 1. **Xenesthis colombiana.**

*Xenesthis colombiana,* E. Simon, Act. Soc. Linn. Bord. xliv. p. 333 [1].
Type, ♂, in coll. E. Simon, Paris.

*Hab.* Panama [1].

I have not seen a specimen of this species.

## SPHÆROBOTHRIA.

*Sphærobothria,* Karsch, Zeitschr. f. ges. Naturw. lii. p. 535 (1879).

Femur iv. without a scopuliform pad on the inner side. Thoracic fovea circular, with large conical tumulus occupying the centre. Tibia i. (♂) with two spurs at the apex beneath. Legs, especially tibia and protarsi iii. and iv., spinose. Tarsal scopula not divided by a row of setæ.

### 1. **Sphærobothria hoffmanni.** (Tab. I. figg. 12, 12 *a–d*, ♂.)

*Sphærobothria hoffmanni,* Karsch, Zeitschr. f. ges. Naturw. lii. p. 536, t. 7. figg. 1, 2 (1879) [1]; E. Simon, Act. Soc. Linn. Bord. xliv. p. 337 [2]; O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. p. 89, t. 12. figg. 1, 1 *a* (♀), 2, 2 *a–d* (♂) [3].

*Hab.* Costa Rica (*Hoffmann, in Mus. Berol.* [2]; *Rogers* [3]), San José (*Tristan*).

It is more than probable that the forms figured in our first volume [3] are identical with Karsch's species, though it will be difficult to decide with certainty should other species of the genus be found in the same locality.

## EURYPELMA.

*Eurypelma,* C. Koch, Über. Arachn. v. p. 73 (1850).
*Brachypelma,* E. Simon, Act. Soc. Linn. Bord. xliv. p. 338 (1890).

Type *Eurypelma avicularia*, C. Koch, Über Arachn. v. p. 73 (1850) (nec Linn.)=*Eurypelma rubropilosa,* Auss. Verh. zool.-bot. Ges. Wien, xxi. p. 213; E. Simon, Hist. Nat. Araign. éd. 2, i. p. 166 (1892).

Femur iv. without scopuliform pad on the inner side. Protarsus iv. without scopuliform pad on the inner side. Legs very spinose, more or less hairy, longer and more slender, shorter and stouter. Carapace longer than, or as long as, broad. Protarsus ii. scopulate to the base. Apical half, apical third, or only extreme apex of protarsus iv. scopulate. Tarsal scopula not divided by a row of setæ. Tibia i. (♂) armed with two spurs, of greater or less length and strength. Labium with numerous spinules at the apex.

*Males.*

I. Legs, carapace, and abdomen clothed with simple hairs and pubescence. Sternum not more than one-sixth longer than broad.
  A. Carapace entirely clothed with pale grey or rose-grey pubescence (cephalic area suffused with brown). Apical half of protarsus iv. scopulate.
    *a.* Tibiæ and base of protarsi of legs clothed with long fiery-red hairs . . . . . *emilia,* White.

*b*. Legs entirely clothed with brown hairs.
1. Bulb of palpus short, lanceolate, truncate. Protarsus i. slightly longer than tibia i. Patella + tibia i. slightly shorter than patella + tibia iv. . . . . *caniceps*, E. Sim.
2. Bulb of palpus elongate, aculeate, geniculate at apex. Protarsus i. slightly shorter than tibia i. Patella + tibia i. as long as patella + tibia iv. . . . . *pallidum*, sp. n.

B. Carapace entirely clothed with sandy-brown, dark-brown, or black pubescence. Apical third, or extreme apex only, of protarsus iv. scopulate.

i. Protarsus i. straight throughout. Protarsus iv. much longer than carapace, almost as long as patella + tibia iv. taken together.
1. Protarsus iv. only one-fifth longer than cephalic area. Bulb shorter, more abruptly geniculate, and more spatuliform at apex; serrations on lower margin coarser; exhibiting on inner side, at apex, a distinct central carina . . . . . *serratum*, E. Sim.
2. Protarsus iv. nearly one-third longer than cephalic area. Bulb longer, less abruptly geniculate, more aculeate at apex; serrations on lower margin very minute; inner side, at apex, without central carina . . . . . *longipes*, sp. n.

ii. Protarsus i., in profile, curved at base; protarsus iv. scarcely longer than carapace, not longer than tibia + half patella iv.

*a*. Bulb of palpus elongate and more or less aculeate at apex.

i. Bulb more or less abruptly geniculate towards apex.
1. Bulb very abruptly geniculate towards apex, not spatuliform viewed from in front, but aculeate and abruptly and evenly curved outwards, its apex being broadly pointed . . . . . *truncatum*, sp. n.
2. Bulb less abruptly geniculate towards apex, spatuliform viewed from in front, aculeate, slightly sinuous, and less abruptly curved outwards . . . . . *spatulatum*, sp. n.

ii. Bulb gradually curved towards apex; viewed from in front almost straight, less strongly curved outwards . . . . *rusticum*, E. Sim.

*b*. Bulb of palpus shorter, truncate, broad-spatuliform at apex.
1. Size much larger: length 40–55 millim. Bulb much longer, broader spatuliform, and concave in front at apex. Tibia of palpus with 2 or 3 spines on inner side . . . . . *vagans*, Auss.
2. Size much smaller: length 30 millim. Bulb much shorter, narrower and more attenuate towards apex. Tibia of palpus with 4 or 5 spines on inner side . . . . . *lanceolatum*, E. Sim.

II. Legs, carapace, and abdomen clothed with thick, tufted, woolly pubescence. Sternum one-third longer than broad. Protarsus iv. without any scopula. Tibia i. with double spur beneath. Palpal bulb broad, spatuliform, with 3 to 5 shallow carinæ behind . . . . . *mesomelas*, O. P.-Cambr.

*Females.*

A. Carapace entirely clothed with pale rosy-grey pubescence. Carapace scarcely longer than broad. Apical half of protarsus iv. scopulate.
1. Patellæ, apex of tibiæ, and protarsi clothed with dull red hairs. Protarsus i. shorter than length of cephalic area . . . . . *smithi,* sp. n.
2.* Legs entirely clothed with brown hairs, not annulated with red. Protarsus i. not shorter than cephalic area . . . . . *pallidum,* sp. n.

B. Carapace entirely clothed with sandy-grey or chocolate-brown pubescence. Carapace always distinctly longer than broad. Apical third, or extreme apex only, of protarsus iv. scopulate.
*a*. Legs with distinct pale longitudinal lines on the base of the protarsi and on the dorsal surface of the tibiæ and patellæ, and indistinctly on the femora.
1. Carapace much longer than broad (23 × 18 millim.). Body much paler yellow, sandy-grey. Abdomen not clothed with fiery-red hairs . . . . . *seemanni,* sp. n.
2. Carapace a little longer than broad (26 × 24 millim.). Body much darker, brown. Abdomen clothed with long fiery-red hairs . *sabulosum,* sp. n.
*b*. Legs without pale lines; unicolorous brown.
1. Protarsus iv. not or scarcely longer than cephalic area . . . . *vagans,* Auss.
2. Protarsus iv. much longer than cephalic area (20 5—15·5 millim.).
*aa*. Patella + tibia i. equal to carapace.
Patella + tibia i. longer than patella + tibia iv. . . . . *longipes,* sp. n.
*bb*. Patella + tibia i. much shorter than carapace.
Patella + tibia i. a little shorter than patella + tibia iv. . . . *panamense,* E. Sim.

Note.—At first sight, the differences in the eye-positions would appear to afford good distinctive specific characters. Careful comparison of numerous specimens, however, proves that these being very liable to individual variation are not to be relied upon for purposes of specific identification and distinction. The best characters I have been able to find are those furnished by the colour of the hairy clothing and the comparative measurements of the posterior protarsi and the carapace and cephalic area. These characters cannot be considered as thoroughly satisfactory, but they must suffice in the absence of better ones.

### 1. **Eurypelma emilia.** (Tab. II. figg. 5, 5 *a*, *b*, ♂.)

*Mygale emilia,* White, P. Z. S. 1856, p. 185, t. 43 [1].

*Brachypelma emilia,* E. Simon, Act. Soc. Linn. Bord. xliv. p. 338 (1890) [2]; Hist. Nat. Araign. éd. 2, i. p. 168 (1892) [3].

Type non-existent. Type of genus *Brachypelma* in coll. E. Simon, Paris.

♂. Carap., length 24, breadth 22 millim.; ceph. area, length 16; ocular tumulus 3 × 2·5; mandib. 10. Legs: i. 78; ii. 73; iii. 68; iv. 81—i. fem. 19, pat. 10, tib. 13, prot. 14, tars. 10—ii. fem. 11, pat. 9, tib. 12, prot. 13, tars. 10—iii. fem. 15, pat. 8·5, tib. 12, prot. 13, tars. 9·5—iv. fem. 19, pat. 10, tib. 15, prot. 18, tars. 11 millim.

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* The females of *E. emilia*, White, and *E. caniceps*, E. Sim., are not known, but will probably fall in this section.

*Hab.* Mexico, Ciudad and Ventanas [2] in Durango (*Forrer*: ♂); Panama (*coll. Simon*: ♂); Central America (*Seemann* [1]).

Besides the original type described by White, two adult males were captured by Mr. Forrer in Mexico, and one adult male exists in the collection of M. E. Simon. The above measurements were taken from this last-mentioned specimen. No females have yet been found apparently, and therefore no notes as to the habits of this fine species have been made.

I am unable to recognize the generic distinction between *Brachypelma*, Simon, and *Eurypelma*, Koch, based on the fact of the apical half of protarsus iv. being scopulate and the legs clothed with long hairs. *Eurypelma vagans* presents these characters, and of the numerous species before me which I assign to *Eurypelma* there are intermediates in the case of both of them.

I believe, however, that the characters noted by M. Simon indicate a number of species which perhaps make up a natural and convenient group in the genus.

### 2. **Eurypelma smithi,** sp. n. (Tab. I. fig. 4, ♀.)

Type, ♀, in coll. Godman & Salvin.

♀. Total length 60 millim. Carap., length 21, breadth 20; ceph. area 13·5; ocular tumulus 2·5 × 2; mand. 9·5. Legs: i. 73·5; ii. 70; iii. 68; iv. 81—i. tib.+pat. 23, tib. 13·5, prot. 12·5—iv. tib.+pat. 23, tib. 15, prot. 19 millim. Tarsal claws not toothed.

♀. Carapace pale orange, cephalic area suffused with brown; anterior margin fringed with orange-rose hairs. Mandibles dark grey, clothed with long rose-coloured hairs. Abdomen clothed with dark velvety-brown pubescence, intersprinkled with long dull orange hairs. Sternum and coxæ of legs deep brown. Labium and coxæ of pedipalps paler. Femora of legs deep brown, fringed with long hairs beneath. Patellæ dull orange, clothed with long hairs. Tibiæ black in their basal half, dull orange in their apical half, clothed entirely with dull orange hairs. Protarsi almost entirely black, their apex dull orange, clothed throughout with long orange-grey hairs. Pedipalps of the same colour as the legs.

Differs little from the typical forms of the genus *Eurypelma*. Carapace almost as long as broad and flat. Fovea small, transverse, recurved. Tibia+patella i. as long as tibia+patella iv. Protarsus iv. clothed beneath in the apical half with a thick scopula.

*Hab.* Mexico, Dos Arroyos in Guerrero 1000 feet (*H. H. Smith*).

At first sight, this interesting form might be taken for *E. emilia* (White), but in the three males of the latter before me the patella of the legs is entirely dark brown, while the hairs on the tibiæ and protarsi are of a much more fiery orange-red. Although so strikingly alike in general appearance, I have not the slightest hesitation in describing the single female from Dos Arroyos as a new species. The tarsal claws in the males above referred to *E. emilia* are toothed, while those of the present form are not. Mr. Smith says:—"The red-legged species makes deep holes in banks, with a silken lining and slight exterior web." It appears also highly possible that this form is the female of *Eurypelma mesomelas*, O. P.-Cambr., but the entire absence of the thick tufted hair so noticeable on the carapace, femora, and other joints of the legs in this latter species prevents me from recognizing them as identical.

### 3. **Eurypelma pallidum,** sp. n. (Tab. I. figg. 17, 17 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin.

♂. Total length 45 millim. Carap. 17·5 × 16; ceph. area 12. Legs: i. 66; ii. 62; iii. 60; iv. 70. Patella + tibia i. 19·5; iv. 19·5. Protarsus i. 12; iv. 16. Tarsal claws toothed.

♂. Carapace clothed with dull rose-grey pubescence. Legs brown, with short red-brown hairs. Abdomen clothed with pale brown hairs.

Similar in general characters to other members of the genus. Tibia i. with a pair of stout spurs, the outer one more or less claviform. Protarsus i. not longer than tibia i. and as long as cephalic area; slightly curved at the base, seen in profile; protarsus iv. not so long as the carapace. Scopula beneath protarsus iv. extending halfway along the joint from the apex.

Palpal bulb elongate-piriform, attenuate, slightly compressed and directed upwards at the apex, lateral view; apex directed abruptly outwards, front view. Apical third of the labium and inner anterior basal angle of the coxa of the pedipalp studded with numerous minute cuspules.

The female closely resembles the male. It has the abdomen clothed with brown and scattered fiery-red hairs.

*Hab.* Mexico, Chihuahua (*Montague Kerr*: ♂), Amula and Venta de Zopilote in Guerrero (*H. H. Smith*: ♀).

This fine species is closely allied to *E. caniceps*, Sim., though the form of the palpal bulb will prevent any confusion between the species. It is highly probable that the females recorded here belong to the two males here named *E. pallidum* rather than to *E. caniceps*.

This spider presents the characters of *Brachypelma*, Sim. Two adult males were taken by W. Montague Kerr in Chihuahua, and two adult females, and one young specimen of the same sex, by H. H. Smith in Guerrero.

### 4. **Eurypelma caniceps.** (Tab. II. figg. 6, 6 *a*, *b*, ♂.)

*Eurypelma caniceps*, E. Simon, Act. Soc. Linn. Bord. xliv. p. 336, and p. 334, fig. 3 [1].

Type, ♂, in coll. E. Simon, Paris.

♂. Total length 41 millim. Carap. 18·5 × 18; ceph. area 13. Legs: i. 70; ii. 67; iii. 65; iv. 78—i. fem. 17, pat. 9, tib. 12, prot. 14, tars. 9—iv. fem. 18, pat. 8, tib. 14, prot. 17·5, tars. 9·5 millim.

The distinguishing feature in this beautiful form is the pale rose-grey pubescence on the carapace; otherwise the colour is similar to that of all the brown species of *Eurypelma*. Legs clothed with thick hair. Tarsal claws toothed. Abdomen clothed with long orange-red hairs.

*Hab.* Mexico, Guanajuato [1].

The type of this species has been submitted to me by M. E. Simon.

### 5. **Eurypelma longipes,** sp. n. (Tab. I. figg. 15, 15 *a–e*, ♂.)

Type, ♂, in coll. Godman & Salvin.

♂. Total length 46 millim. Carap. 18 long., 16 lat.; ceph. area 12. Legs: i. 80; ii. 75; iii. 70; iv. 85. Patella + tibia i. 25; iv. 24. Protarsi: i. 15·5; iv. 24 millim.

♂. Entirely clothed with brown and sandy-grey hairs. Abdomen clothed with red-grey hairs. Ocular tumulus twice as broad as long. Legs very long and slender. Protarsus i. longer than cephalic area, straight. Protarsus iv. much longer than the carapace. Scopula present on the extreme apex of protarsus iv. only. Tibia i. with a pair of elongate more or less slender spurs, the outer spur with two spines near the apex. Apical third of the labium and inner anterior basal angle of coxa of pedipalp studded with numerous

minute cuspules. Palpal bulb short, piriform, sinuous, depressed at the apex, not much attenuate, with very minute serrations beneath. Tibia of palpus with four or five stout spines on the inner side.

♀. Total length 58 millim. Carap. 24 × 21; ceph. area 15·5. Oc. tumulus 3·25 × 2·5. Legs: i. 77; ii. 71; iii. 66; iv. 83. Pat.+tib. i. 24; iv. 23. Tib. i. 14; prot. i. 12·5. Tib. iv. 15; prot. iv. 20·5. Tarsus i. 9·5; tarsus iv. 9·5 millim.

♀. Mahogany-brown, clothed entirely with rufous-brown hairs. Abdomen clothed with darker brown pubescence and long rufous-orange hairs.

Carapace gibbous in the cephalic area, profile view. Lateral impressions broad and strongly marked. Fovea straight, transverse, deep. Superior pair of spinners as long as the sternum (including labial plate). Protarsus i. scopulate to the base, not spinous at the base. Tibiæ i. and ii. with a few spines. Protarsi iii. and iv. with numerous spines beneath, iii. scopulate halfway, iv. scopulate only at the extreme apex. Tibiæ iii. and iv. with a few spines beneath. Tarsal claws with eight or nine small teeth.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, Chicoyoito (*Sarg, von Turckheim*), Cubilguitz, Coban, Salama, Rabinal (*Sarg*).

A single adult male (no. 410) was taken by Mr. Sarg at Chicoyoito. This specimen was found by Herr von Turckheim in his house. An adult female (no. 379) was also found by the same gentleman on his bed, fallen from the thatched roof. Called by the natives "araña de caballo," who believe that they injure horses and mules by biting them above the hoof, which drops off and renders the animal useless for a year or more. Mr. Sarg says, "I have myself seen the effects, but am suspicious as to the cause." He further remarks that the late S. Bernoulli noticed "arañas de caballo using short horsehair for lining their nests in the ground." This is probably an error of observation, for the short hairs seen were doubtless those shed by the spider itself. At Salama and Rabinal, says Mr. Sarg, where "arañas de caballo" abound, little boys capture them by "bobbing" with a pellet of wax on a string. The mandibles become fixed and the "araña" is withdrawn from the burrow; subsequently the captives are set to fight in pairs, and afford "excellent sport."

Three apparently immature examples of this same species are recorded by Mr. Sarg—one from Coban (no. 1254), one from Cubilguitz (no. 796), and one (no. 1525) without definite locality. Unfortunately the collector has not noted the conditions under which these specimens were captured.

Mr. Smith makes the following note:—"No. 532. Teapa, March 14, under a log, shady place, with egg-case (enclosed)."

I am unable to separate this specimen from examples of what I take to be the young of *E. longipes*, though from the note furnished by Mr. Smith one would suspect it to be adult. If this is the case, more examples will be required before the distinctive characters can be diagnosed. The legs of no. 532 present more distinctly the double pale line on the patellæ and tibiæ than the others, which, as young specimens, I refer to *E. longipes*; so that it is not at all improbable that the former may eventually turn out to belong to a separate species.

## 6. **Eurypelma serratum.** (Tab. I. figg. 16, 16 *a–c*, ♂.)

*Eurypelma serratum*, E. Simon, Act. Soc. Linn. Bord. xliv. p. 336, and p. 334, fig. 4[1].

Type, ♂, in coll. E. Simon, Paris.

♂. Total length 30–35 millim. Carap. 15 × 14·5; ceph. area 10. Legs: i. 66; ii. 62; iii. 57; iv. 70—i. fem. 16, pat. 8, tib. 12, prot. 12, tars. 9—iv. fem. 15, pat. 6·5, tib. 13, prot. 18, tars. 9·5 millim.

Entirely brown, of the hue usually presented by species of the genus. Legs very long. Posterior protarsi almost as long as the tibia and patella together. Legs clothed with very short hairs. Tarsal claws toothed.

*Hab.* Mexico [1].

The type of this species has been kindly submitted to me by M. E. Simon.

## 7. **Eurypelma truncatum,** sp. n. (Tab. I. figg. 21, 21 *a*, ♂.)

Type, ♂, in coll. Godman and Salvin.

♂. Total length 26 millim. Carap. 13 × 11·5; abd. 13; sternum 6 × 6; coxa of pedipalp 6 × 2·5; mandible 6. Legs: i. 49; ii. 46; iii. 44·5; iv. 55—i. coxa 6, troch. 2·5, fem. 12·5, pat. 6, tib. 10, prot. 8·5, tars. 7—ii. coxa 5, troch. 2·5, fem. 11, pat. 5·25, tib. 8, prot. 8·5, tars. 5—iii. coxa 5, troch. 2·5, fem. 10, pat. 5, tib. 7·5, prot. 9, tars. 5·5—iv. coxa 5, troch. 2·5, fem. 13·5, pat. 5·5, tib. 10, prot. 12·5, tars. 6·75. Ocular tumulus 2 × 1, anterior marg. 6; clypeus 0·5, anterior marg. to fovea 9, fovea to post. marg. 4·75; mam. sup. 5 millim.

♂. Carapace mahogany-brown, clothed with ferruginous hairs. Sternum and coxæ of legs clothed with darker ferruginous hairs; coxæ of pedipalp paler, the inner margin fringed with rufous hairs. Legs pale sandy-ferruginous. Abdomen dark brown, clothed with ferruginous hairs. Mandibles brown, clothed with ferruginous hairs; margins of fang-groove clothed with rufous hairs.

Carapace very little longer than broad. Fovea placed more than two-thirds towards the base. Eye-tumulus twice as broad as long; central portion raised, bearing central anterior eyes. Anterior row of eyes procurved, almost equidistant; centrals one diameter apart, three-fourths diameter from laterals. Posterior laterals and centrals contiguous, almost one diameter ot former from anterior laterals. Sternum longer than broad. Sigilla 3, submarginal. Labial plate broader than long (or almost the same), its apical fourth studded with numerous minute cuspules. Coxa of pedipalp scarcely twice its width, distal, the anterior angle slightly produced; basal anterior angle studded with minute cuspules. Legs 4, 1, 2, 3, spinose, especially tibiæ and protarsi iii. and iv. beneath. Tibia i. with a bilobate process at the apex beneath; outer branch twice as long as the inner, curved inwards and upwards. Protarsus i. slightly curved at base. Protarsi and tarsi i. and ii. entirely and thickly scopulate. Tarsi iii. and iv. entirely scopulate. Protarsus iii. with apical two-thirds scopulate; iv. with apex only scopulate and spinose. *Pedipalp*: Tibiæ set with 9–10 spines on the inner side, a cluster of five or six at the apex. Tarsus short, globose; bulb normal; apex prolonged, slightly spatuliform, abruptly curved outwards at the extremity.

*Hab.* Mexico (*F. D. Godman*).

Two males. This species appears to be closely allied to *E. caniceps*, Sim., but has twice as many spines on the inner side of the tibia of the pedipalp, whilst the bulb is much more prolonged at the apex and more abruptly curved outwards (see Simon's fig., Act. Soc. Linn. Bord. xliv. p. 334, fig. 3).

Protarsus i. being shorter than tibia i. precludes the possibility of its specific identity with *E. helluo*, *E. rusticum*, *E. steindachneri*, and *E. hentzi* (see Simon's Table, *loc. cit.* pp. 321, 322), and from *E. marxi* it is easily distinguished by the greater number

of spines on the tibia of the pedipalp, 9–10, while in *E. marxi* there are only 2 (sec. Simon).

### 8. **Eurypelma spatulatum,** sp. n. (Tab. I. figg. 19, 19 *a*, *b*, ♂.)

Type, ♂, in Brit. Mus., ex coll. Keyserling.

♂. Length —? Carapace 18×17; abdom. ?; sternum 7×5·5; coxa of pedip. 7×4; mandible 8 millim. Legs ? ? ? ? Ocular tumulus 2×2, anterior margin to fovea 12, fovea to posterior margin 5·5 millim.

♂. Carapace, sternum, abdomen, and legs dark ferruginous-brown, clothed with sandy-grey pubescence and long hairs. Leg i. has on the femur outside a long lanceolate pale band and two narrow sandy-grey dorsal lines. Patella with two pale lanceolate bars enclosing a similar brown bar. Tibia with two pale narrow dorsal grey bars; base of protarsus with a short, central, narrow pale bar. (In all probability all four pairs of legs are similarly marked, but some are missing.)

Carapace a little longer than broad. Cephalic area occupying more than two-thirds the length of the carapace. Eye-tumulus as long as broad; central portion raised, bearing anterior central eyes. Anterior row of eyes procurved; longitudinal axis of laterals a little longer than the diameter of the centrals; centrals one diameter apart, half a diameter from laterals. Posterior eyes almost contiguous; centrals smaller; laterals oval, one-half their longitudinal axis from anterior laterals. Sternum longer than broad. Sigilla 8, submarginal. Labial plate a little longer than broad, its apical third area studded with numerous cuspules. Basal anterior angle of the coxa of the pedipalp similarly studded; distal anterior angle slightly produced. *Legs*: Protarsus i. curved (in profile) at the base, as long as the tibia. Inner apex of tibia i. with two spurs beneath; outer spur long, slender, curved upwards and slightly inwards, with a few cusps and a short conical tooth at the apex; inner spur shorter, but slender.

Tarsi and protarsi i. and ii. scopulate to the base. Tarsi iii. and iv. scopulate to the base. Protarsus iii scopulate to the base; iv. scopulate for one-fourth its length at the apex.

Legs spinose, especially the tibiæ and protarsi iii. and iv. beneath. Protarsus iv. as long as the tibia and half the patella. Tarsal claws 2, with 5–6 minute separate denticules beneath.

*Palpal bulb*, seen from outside, elongate-piriform, concave-spatuliform towards the apex, attenuate and finely aculeate at the apex itself, slightly curved and directed forwards. The outer margin of the spatulate portion forms a distinct carina; seen from in front, elongate-piriform, straight, the apex sinuo-spatuliform-aculeate, scarcely curved outwards.

*Hab.* Mexico (*Mus. Brit., ex coll. Keyserling*).

A single adult male.

### 9. **Eurypelma rusticum.** (Tab. I. figg. 20, 20 *a*, ♂.)

*Eurypelma rusticum*, E. Simon, Ann. Soc. Linn. Bord. xliv. pp. 323[1], 334[2].

Type, ♂, in coll. E. Simon, Paris.

♂. Total length 35 millim. Carap. 15×13; ceph. area 10. Legs: i. 57; ii. 52; iii. 49; iv. 61—i. fem. 14, pat. 6·5, tib. 10·5, prot. 10, tars. 6·5—iv. fem. 13·5, pat. 7, tib. 11, prot. 14·5, tars. 8.

The colour of this form is the same as that of the majority of the species of the genus; while the hairs on the legs are intermediate in length between those of the extreme forms. Tarsal claws toothed.

*Hab.* North America[1], Fort Yuma, Arizona[1 2], and Texas[2].—Northern Mexico[1], Presidio, Santiago (*Marx*[2]), Mazatlan[2], Ventanas[2], Ciudad in Durango (*Forrer*).

The type-specimen, from which our figures are taken, has been kindly submitted to me by M. E. Simon for examination.

We have received three adult males of this species from Ciudad in Durango.

### 10. **Eurypelma vagans.** (Tab. I. fig. 9, ♂.)

*Eurypelma vagans,* Auss. Verh. zool.-bot. Ges. Wien, xxv. p. 197, t. 7. fig. 41 (1875)[1]; E. Simon, Act. Soc. Linn. Bord. xliv. p. 334, fig. 1[2].

*Eurypelma dupontii,* Becker, Compt. rend. Soc. Ent. Belg. xxii. p. cxliii (1879)[3].

Type, ♂ and ♀, in Brit. Mus., ex coll. Keyserling.

♂. Total length 40–55 millim.

*Hab.* Mexico[3], Dos Arroyos in Guerrero, Teapa in Tabasco (*H. H. Smith*), Yucatan[1]; Guatemala, Cahabon and Cubilguitz in Vera Paz (*Sarg*).—Colombia[1].

Adult males have been received from Dos Arroyos and Cubilguitz, adult females and young from Teapa, and adult males and females and young from Cahabon.

Mr. Sarg notes that one of his specimens had a large cocoon, thereby confirming the fact of its maturity; also that he had captured an adult female at La Tinta, in the Polochic valley, running about in his hat, where it had taken refuge for the night.

Mr. Smith notes that he found an adult female at Teapa in a hole under a stone in an open field with clay soil (no. 321), also another (no. 1143) at Dos Arroyos, and adds, "The red-legged species make deep holes in banks, with a silken lining and slight exterior web," referring also to *E. smithi*.

### 11. **Eurypelma lanceolatum.** (Tab. I. figg. 13, 13 *a*, *b*, ♂.)

*Eurypelma lanceolatum,* E. Simon, Act. Soc. Linn. Bord. xliv. p. 335, and p. 334, fig. 2[1].

Type, ♂, in coll. E. Simon, Paris.

♂. Total length 30 millim. Carap. 12 × 9; ceph. area 8 millim. Legs: i. 48; ii. 41; iii. 39; iv. 50—i. fem. 12, pat. 5·5, tib. 10, pat. 7·5, tars. 5·5—ii. fem. 11, pat. 5, tib. 10, pat. 12, tars. — millim.

This small species is of the usual brown colour. The legs are not proportionately so long as in *E. serratum*, though they present the same general features, especially in the absence of hair. Tarsal claws toothed.

*Hab.* Nicaragua (*Peckham*[1]).

The type of this and of the following species have been kindly submitted to me by M. E. Simon for examination.

### 12. **Eurypelma panamense.** (Tab. I. fig. 5, ♀.)

*Eurypelma panamense,* E. Simon, Act. Soc. Linn. Bord. xliv. p. 337[1].

Type, ♀, in coll. E. Simon, Paris.

♀. Total length 52 millim. Carap. length 25, breadth 21·5; ceph. area, length 15; ocular tumulus, length 3, breadth 4; mandib. 12. Legs: i. 75; ii. 69; iii. 65; iv. 82—i. coxa 10, troch. —, fem. 16, pat. 10, tib. 13, prot. 12, tars. 9—ii. coxa 9, troch. —, fem. 15, pat. 9·5, tib. 11, prot. 11·5, tars. 9—iii. coxa 8, troch. —, fem. 14, pat. 9, tib. 10, prot. 11, tars. 9·5—iv. coxa 9, troch. —, fem. 18, pat. 9·5, tib. 14·5, prot. 19·5, tars. 10 millim. Tarsal claws toothed.

*Hab.* Mexico[1]; Guatemala[1].

### 13. **Eurypelma seemanni,** sp. n. (Tab. III. fig. 1, ♀.)

Type, ♀, in coll. Brit. Mus., London.

♀. Total length 57 millim. Carap. 23 × 18; abd. 26; sternum 11 × 9; coxa of pedip. 9·5 × 5; mandible 10. Legs: i. 70; ii. 64; iii. 59; iv. 73—i. coxa 10, troch. 5, femur 16, pat. 10, tib. 12, prot. 11, tars. 8—ii. coxa 8·5, troch. 5, femur 16, pat. 9, tib. 10·5, prot. 10, tars. 8—iii. coxa 7, troch. 4, fem. 13·5, pat. 8, tib. 8·5, prot. 10, tars. 5—iv. coxa 8, troch. 4·25, fem. 17, pat. 9, tib. 12·5, prot. 15, tars. 8. Ocular tumulus 2·75, ant. marg. 13, ant. marg. to fovea 15, fovea to post. marg. 7. Mam. sup. 9·5; seg. i. 3·5; ii. 2·75; iii. 2·75 millim.

♀. Carapace rich mahogany-brown, clothed with sandy-yellow pubescence; anterior margin fringed with short rufous hairs; lateral and posterior margins fringed with rufous hairs. *Abdomen* chocolate-brown, clothed with numerous sandy hairs, ferruginous along the sides. Ventral surface and mamillæ ferruginous. Sternum, mouth-parts, and the coxæ of the legs ferruginous. Coxæ of pedipalp and margins of fang-groove fringed with rufous hairs. *Mandibles* grey, clothed with mingled ferruginous and sandy-grey hairs. Femora of legs and pedipalp brown, with two narrow indistinct pale longitudinal lines above. Femora i., ii., and iii. and of pedipalp having on the outer side a long, lanceolate, pale mark extending over the basal two-thirds. *Patella* of pedipalp and of i., ii., iii., iv. brown, with a pair of pale sandy lanceolate bars on each, extending from the base to the apex, those on iii. and iv. twisted posteriorly at the apex. Tibiæ of pedipalp and of i., ii., iii., iv. brown, with a pair of thin, longitudinal, sandy bars extending from the base to the apex. Protarsi i., ii., iii., iv. with a single short, narrow, central, basal sandy line. Tarsus of pedipalp with a single short, narrow, central, basal sandy line. Tarsi of i., ii., iii., and iv. unicolorous brown. Legs sandy-brown, clothed with ferruginous hairs below. Anterior margin of each segment fringed with short sandy hairs. Patellæ of all five appendages with a small sandy mark on the posterior side towards the base below.

Carapace about one-third longer than broad; cephalic area two-thirds the length of the carapace. Clypeus equal to half the length (longitudinal) of the eye-tumulus. Eye-tumulus slightly broader than long, ovate. Anterior row of eyes slightly procurved; eyes subequal, centrals one diameter apart, two-thirds from the laterals. Central posteriors contiguous with the lateral posteriors, the latter one-half a transverse diameter from the lateral anteriors. Cephalic striæ broad and shallow; cephalic area slightly, but not abruptly, raised from the fovea forwards, again inclined to the frontal margin. Fovea deep, straight, transverse, at bottom; upper margin broad-oval; posterior margin slightly emarginate in the centre. Inner margin of fang-groove with eight teeth, the base of the groove studded with minute cuspules. Coxa of pedipalp nearly twice as long as broad; inner distal angle produced into a short blunt spur; inner basal angle studded with numerous spinules. *Labial plate* slightly longer than broad, oval-quadrate, its apical fourth studded with numerous spinules. *Sternum* longer than broad, the anterior margin concave, the posterior margin terminating in a point, reaching the centre of the base of coxæ iv. Legs i. and ii. stouter than iii. and iv. Tibia i. = 4·5 millim. wide; tibia iv. = 3·75 millim. wide. Tibiæ and protarsi i., ii., iii., and iv. more or less spinose. Protarsi and tarsi i. and ii. clothed beneath with a thick scopula. Protarsus iii. with the apical half and the whole of tarsus iii. scopulate. Protarsus iv. with the apical third and the whole of tarsus iv. scopulate. Protarsi iii. and iv. very spinose beneath, including several spines at the apex. Coxæ of the legs subsimilar in width, those of iv. wider in proportion to length. Tarsal claws 2.

*Hab.* N.W. Costa Rica, Puerto Culebra (*Seemann*).

Of this species I have examined an adult female, and also a young example of the same sex.

### 14. **Eurypelma sabulosum,** sp. n.

Type, ♀, in coll. Godman & Salvin.

♀. Total length 65 millim. Carap. 26 × 24; ceph. area 18; oc. tum. 3·25 × 2·5. Legs: i. 73; ii. 68; iii. 62; iv. 75. Pat.+tib. i. 23; iv. 22. Prot. iv. 16 millim.

♀. Entirely clothed with chocolate-brown hairs, inclining to rufous. Abdomen with long scattered fiery-red

hairs. Protarsi with a short basal central pale bar; tibiæ with a pair of parallel pale bars; patellæ with a pair of lanceolate pale sandy-grey bars. Underside clothed with rich chocolate-brown hairs.

Patella + tibia i. shorter than patella + tibia iv. Protarsus i. shorter than cephalic area. Protarsus iv. shorter than cephalic area, scopulate on the apical third; very spinose.

Anterior legs slightly stouter than the posterior.

*Hab.* GUATEMALA, Tikal, Peten (*A. P. Maudslay*).

This fine species is allied to *E. seemanni*, but the carapace is broader in proportion to its length, and the whole body is paler.

An adult female (no. 1043) was taken at Tikal, Peten, by Mr. Maudslay, who gave it to Mr. Sarg. The collector gives no note as to habitat. merely remarking that it was found with a cocoon. It is doubtless a burrow-dweller, and, except for the spines on the legs, closely resembles species of the genus *Santaremia*, F. P.-Cambr., from Brazil and the Antilles.

### 15. **Eurypelma mesomelas.** (Tab. I. figg. 14, 14 *a–d*, ♂.)

*Eurypelma mesomelas*, O. P.-Cambr. Biol. Centr.-Amer., Arachn.-Aran. p. 90, t. 11. figg. 8, 8 *a–e* * (♂)[1].

Type, ♂, in coll. Godman & Salvin.

*Hab.* COSTA RICA, Caché (*Rogers* [1]), La Palma (*Tristan*).

Three adult males of this species were obtained by Mr. Rogers; and one has been received from the Museo Nacional de Costa Rica, found at La Palma by Mr. J. F. Tristan.

This form is remarkable for the velvety, woolly clothing on the carapace and abdomen, and on the femora and other joints of the legs. There is also scarcely a trace of scopula at the apex of protarsus iv. The tarsal claws are toothed. It might be advisable to separate this species from *Eurypelma*, but at present I prefer to leave it in the group where it was first placed.

## PARAPHYSA.

*Paraphysa*, E. Simon, Hist. Nat. Araign. éd. 2, i. p. 166 (1892).

Type (♂) *P. manicata*, E. Simon, South America.

Femur iv. without scopuliform pad on the inner side. Protarsus iv. without scopuliform pad on the inner side. Legs spinose, more or less hairy, long and slender. Protarsus ii. scopulate to the base; apical third of protarsus iv. scopulate. Tarsal scopula not divided by a row of setæ. Tibia i. (♂) armed with two very short, stout spurs. Labium with only a few spinules at the apex.

### 1. **Paraphysa manicata.** (Tab. I. figg. 18, 18 *a*, *b*, ♂.)

*Paraphysa manicata*, E. Simon, Hist. Nat. Araign. éd. 2, i. p. 166, nota [1].

*Hab.* MEXICO (*Mus. Brit., ex coll. Keyserling*).—SOUTH AMERICA [1], Peru.

There are several males of this species from Peru in the British Museum, and these

* In the explanation of tab. xi. nothing is said about the figure 8 *e*: it represents, as is perfectly obvious, a portion of one of the first pair of legs.

enable me to identify Keyserling's specimen as *P. manicata*. It is possible, however, that the locality "Mexico" is not correct.

## SCHIZOPELMA, gen. nov.

Femur iv. without internal scopuliform pad. Tarsus iv. with a narrow longitudinal row of setæ beneath. Tibia i. (♂) with a short stout spur on the inner side at the apex beneath, and numerous spines on the outer side. Protarsus ii. scopulate to the base. Protarsus iv. scopulate at the apex. Eyes, sternum, and mouth-parts as in *Eurypelma*.

Type *Schizopelma bicarinatum*, sp. n.

A. (♂). Bulb of pedipalp short, stout, piriform, strongly geniculate; apex excavate on the outer side, bifid, exhibiting a short sharp spine beneath, with two well-marked carinæ on the dorsal and inner sides, encircling the bulb longitudinally . . . . . *bicarinatum*, sp. n.

B. (♂). Bulb of pedipalp short, piriform, simple, not geniculate; apex broadly pointed, deflected, not attenuate nor bifid, without carinæ . . . . . *macropus* (Auss.).

### 1. **Schizopelma bicarinatum**, sp. n. (Tab. II. figg. 11, 11 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin.

♂. Total length 23 millim. Carap. 13·5 × 11·5; ceph. area 8·5; oc. tumulus 1·75 × 2. Legs: i. 50; ii. 46; iii. 44; iv. 56. Pat.+tib. i. 15; iv. 16. Prot. i. 8·5; iv. 13·5. Sternum 6·5 × 5 (not incl. labial plate).

♂. Sternum and legs entirely clothed with brown pubescence and pale rufous hairs. Carapace and mouth-parts clothed and fringed with short rufous hairs and pubescence. Abdomen clothed with long bright rufous hairs.

Carapace a little longer than broad. Ocular tumulus slightly broader than long. Anterior lateral eyes less than one transverse diameter from the centrals; anterior row procurved and otherwise as in genus *Eurypelma*. Sternum longer than broad. Labial plate and coxæ of pedipalp at the inner anterior basal angle set with numerous cuspules. Tarsus iv. with a narrow longitudinal row of setæ, dividing the scopula, beneath. Protarsus i. scopulate to the base, with 7–8 spines on the basal half beneath. Protarsus ii. scopulate to the base, but intermingled with simple hairs in the basal half, with 5–6 spines beneath. Tibia i. with a short conical spur on the inner side at the apex, crested with a single spine and two others on its outer side; and with two spines on the outer margin; otherwise with numerous spines on the outer side and beneath. Apical half of protarsus iii. scopulate. Apical third, at least, of protarsus iv. scopulate. Tibiæ and protarsi iii. and iv. numerously spinose.

*Pedipalp*. Tibia with 1–3 spines on the inner side. Bulb short, stout, piriform, strongly geniculate, apex excavate on the outer side, bifid, exhibiting a short sharp spine beneath; with two well-marked carinæ on the dorsal and inner sides, encircling the bulb longitudinally.

♀. Total length 35 millim. Carap. 14 × 12; ceph. area 9; oc. tumulus 2 × 2·25. Legs: i. 43; ii. 39; iii. 38; iv. 48. Pat.+tib. i. 14; iv. 14. Prot. i. 6·5; iv. 10. Sternum 6 × 6 (not incl. labial plate).

Coloured as in the male sex. Central fovea, as in male, transverse-oval, deep. Tarsus iv. with a narrow longitudinal row of setæ beneath. Protarsus i. scopulate to the base, with two stout spines in the basal half. Protarsus iii. scopulate on the inner side, but not entirely on the outer side, where are set 5–6 stout spines and long setæ. Apical half of protarsus iii., and the apical third of protarsus iv., scopulate, the latter two parts set also with numerous spines. Labial plate as in the male. Tarsal claws with 4–5 minute teeth.

*Hab.* MEXICO, Xautipa in Guerrero (*H. H. Smith*).

An adult male, two adult females, and an immature specimen of the latter sex of

this distinct species have been received from Mr. Smith. The form of the palpal bulb of the male is evidently very similar to that of *Eurypelma striatipes*, Auss., though it is not likely that the two forms are identical.

### 2. **Schizopelma macropus.** (Tab. I. figg. 10, 10 *a*, ♂.)

*Crypsidromus macropus*, Auss. Verh. zool.-bot. Ges. Wien, xxv. p. 179, t. 6. figg. 24, 25 (1875)[1].

Type, ♂, in Brit. Mus., ex coll. Keyserling.

*Hab.* Mexico, Orizaba[1].

Under *Crypsidromus**, Ausserer included at any rate two forms with tarsus iv. divided beneath—*C. macropus* and *C. pernix*—adult males, each of which must be referred to a different genus. For the first, the type, having only one spur beneath tibia i. at the apex, with *bicarinatum*, sp. n., I have founded the genus *Schizopelma*.

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* Crypsidromus, Auss. Verh. zool.-bot. Ges. Wien, xxi. p. 193 (1871).

Ausserer, in his diagnosis of the genus *Crypsidromus*, gives no character whereby one may clearly understand on what his genus is based. The diagnosis is apparently drawn from a female, though he does not say so. The characters given would apply equally well to an immature female of the genus *Eurypelma*. I have not seen the type, *C. isabellinus*, Auss., and therefore hesitate to refer any species to the genus *Crypsidromus*, Auss.

Of the forms in Keyserling's collection referred by Ausserer to *C. pernix* and *C. macropus*, the former differs so much from the latter that they cannot be retained in the same genus, and after such a discovery one is naturally still more disinclined to refer any particular form to *Crypsidromus* until the actual type-specimen can be examined.

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Cyrtosternum, Ausserer, Verh. zool.-bot. Ges. Wien, xxv. p. 176 (1875).

Type *C. cursor*, ♀, Auss.

All that Ausserer says of the type is:—"In der Sammlung des Herrn Grafen Keyserling finden sich mehrere Weibchen dieser Art aus St. Domingo."

The specimens referred to are now before me and are quite distinct generically from the other forms allied to *Crypsidromus*, which fall readily into *Cyrtopholis*, Sim. (in part) (see Table in Nat. Hist. Araign. éd. 2, i. p. 143). This distinction, which Simon appears to have overlooked, lies in the circular convex sternum, as Ausserer clearly points out (Verh. zool.-bot. Ges. Wien, xxv. p. 176), "Das Sternum sehr stark gewölbt, so lang als breit."

The name *Cyrtosternum* being preoccupied, however, Simon has renamed the genus, of which *C. cursor* is the type, *Cyrtopholis*. As regards the identity of *Crypsidromus innocuus*, Auss., it is not possible to speak with certainty; but seeing that Ausserer was fully alive to the character furnished by the sternum of *Crypsidromus*, "Sternum länger als weit," compared with that of *Cyrtosternum* quoted above, it may be inferred that *Cyrtopholis cursor* (Auss.) is not congeneric with *Crypsidromus innocuus*, Auss. Why M. Simon should conclude that *Cyrtosternum cursor*, of which he says "l'espéce type m'est inconnue," is congeneric with a form which he identifies as *Crypsidromus innocuus*, Auss., I cannot suggest, except that he has overlooked the chief character given by Ausserer as distinctive of *Cyrtosternum*, and has seized on another character which he regards, probably correctly, as insufficient for a generic distinction.

The second, *C. pernix*, having two long spurs beneath tibia i. and tarsus iv. divided beneath, is here separated under Ausserer's genus *Hapalopus*.

## HAPALOPUS.

*Ischnocolus*, subgen. *Hapalopus*, Ausserer, Verh. zool.-bot. Ges. Wien, xxv. p. 175 (1875).

Type *H. formosus*, Auss. loc. cit. t. 6. figg. 17, 18, Santa Fé de Bogotá, Colombia. Type in coll. Hofmuseum, Vienna.

Tibiæ and protarsi iii. and iv. more or less spinose. Femur iv. without scopulate pad on the inner side. Protarsus ii. scopulate to the base. Tarsus iii. with an indistinct and tarsus iv. with a distinct narrow row of setæ dividing the scopula longitudinally. Tibia i. (male) with two stout spurs at the apex beneath. Sigilla: three pairs apparent.

M. E. Simon (Hist. Nat. Araign. éd. 2, i. p. 141) regards *Hapalopus*, Auss., as identical with *Cyclosternum*, Auss. There seems to be no sufficient reason for such a conclusion; indeed, from examples before me, which undoubtedly belong to the former, which I identify as *H. formosus*, Auss. (from Colombia), and *H. inflatus*, Sim., besides several other species referable to the same genus, there is every reason to conclude otherwise. For, Ausserer says, "Sternum even somewhat broader than long, convex" ("Sternum fast etwas breiter als lang, gewölbt"). "Scopula, die an Tarsus iii. und iv. sowie am Endgliede der Palpen, durch ein breites Band von Stachelborsten getheilt ist."

Simon makes no mention of the sternal character which Ausserer considered characteristic, if any one was, of his genus *Cyclosternum*, namely, its breadth and convexity.

Adult examples are before me which exhibit this character very distinctly; and I am therefore able to refer those not possessing this form of sternum, but possessing two spurs beneath tibia i. and the scopulæ of tarsus iv. divided, to *Hapalopus*, Auss. Confusion may arise if it is not borne in mind that immature examples of *Hapalopus* and other Theraphosidæ exhibit a sternum much more circular than is found in the adult form, and these might on that account be referred to *Cyclosternum*. The sternum of the examples which I refer to above is, however, quite distinct in character from that found in the young of *Hapalopus*.

I have also before me two adult males of a form which I identify as *Hapalopus inflatus*, E. Sim., and in these the sternum is most decidedly longer than broad, measuring from the base of the labial plate, and not in any way convex.

Whether M. Simon has seen the type of *Cyclosternum schmardæ*, Auss., or not, I cannot say. If so, he must either have overlooked the chief character, or else Ausserer must have described a character which did not present itself. Whether the male referred by Simon to this latter species, of which he gives a figure in Hist. Nat. Araign. éd. 2, i. p. 138, really is identical with it, I cannot say, for Ausserer's type was, for all he himself says to the contrary, a female. I therefore reserve *Cyclosternum* for Ausserer's original type *schmardæ*, and *Hapalopus* for the type *formosus*, Auss.

*a*. Abdomen either orange with transverse-oblique lateral black slashes (♀) or black with lateral orange slashes (♂). Palpal bulb deeply cleft at the base behind, strongly geniculate; apex very broad, slightly spiraloid, bifid; outer branch large; inner branch much smaller. Outer tibial spur very long and curved in a semicircular form, not dilated at the apex and without a spine on the inner side . . . . . *pentaloris*, E. Sim.

*b*. Abdomen unicolorous brown. Palpal bulb not deeply cleft at the base, bilobate, piriform; basal lobe compressed globular; apical lobe concave in front, attenuate at the apex, its point directed outwards and downwards. Outer tibial spur long, slightly dilated at the apex, with a long spine on the inner side (♂) . . . . . *pernix*, Auss.

### 1. **Hapalopus pernix.** (Tab. II. figg. 14, 14 *a–c*, ♂.)

*Crypsidromus pernix*, Auss. Verh. zool.-bot. Ges. Wien, xxv. p. 178, t. 6. figg. 22, 23, 23 *a* (1875)[1].

Type, ♂, in Brit. Mus.

♂. Total length 27 millim. Carap. 11 long., 9 lat.; ceph. area 7. Legs: i. 39; ii. 37; iii. 37·5; iv. 46. Pat.+tib. i. 11; iv. 12. Prot. i. 7; iv. 11 millim.

*Hab.* Mexico, Pic de Orizaba [1].

M. Simon (Act. Soc. Linn. Bord. xliv. p. 330) also records this species from Guatemala. The Guatemalan specimen, a female, has been carefully examined by me, and its specific identity with *Crypsidromus pernix*, Auss. (the male type of which is before me), is doubtful.

### 2. **Hapalopus pentaloris.** (Tab. II. figg. 2, ♀; 3, ♀, young; Tab. III. figg. 2, 2 *a–c*, ♂.)

*Crypsidromus pentaloris*, E. Simon, Ann. Soc. Ent. Fr. 1888, p. 216[1]; Act. Soc. Linn. Bord. xliv. p. 331 (1892)[2].

Type, ♀, in coll. E. Simon, Paris.

*Hapalopus ruficeps*, E. Simon, Bull. Soc. Zool. Fr. xvi. p. 109 (1891)[3]; Act. Soc. Linn. Bord. xliv. p. 331[4].

Type, ♀, in coll. E. Simon, Paris.

♂. Total length 31 millim. Carap. 14 long., 12 lat.; ceph. area 8. Legs: i. 50; ii. 47; iii. 46·5; iv. 58. Pat.+tib. i. 15; iii. 12·5; iv. 16. Prot. i. 9·5; iv. 13 millim.

♂. Carapace, legs, and sternum uniform chocolate-brown. Abdomen black, with pale central dorsal area and a few indistinct transverse oblique lateral stripes towards the apex.

♀ (imm.). The hues of the abdomen are much more conspicuous than in the adult. Carapace, legs, and sternum uniform pale chocolate-brown. Abdomen with pale orange central dorsal area, sometimes darker towards the apex, with five conspicuous rich orange transverse oblique lateral slashes, alternating with deep black intervals, narrower and more closely adjacent towards the spinners. Ventral area orange, with a broad black dentate central band. The disposition of the bands and the coloration of the dorsal area vary with individuals.

♂. Tibia i. bears two slender spurs, the outer being very long, directed inwards, and strongly uncate, without a spine; the inner short and straight, bearing a spine on the inner side. Protarsus i. very strongly curved about the middle; the scopula of tarsus iv. divided by a narrow band of setæ beneath.

*Palpal bulb* somewhat resembling that of *Pseudopelma bicarinatum* in form, bifid at the base behind, strongly geniculate and bifid at the apex.

*Hab.* GUATEMALA, San Cristobal (*Sarg*), Vera Paz [1] [2], Guatemala city (*Stoll*); COSTA RICA [3] [4].

*H. pentaloris* may readily be distinguished from the other Central-American species of the genus by the orange-red stripes on the abdomen, the form of the bulb, and that of the spurs beneath tibia i.

An adult male and three immature females of a spider were found in a collection made in the vicinity of Guatemala city by Herr Otto Stoll which are evidently specifically identical with the adult female sent by M. E. Simon as the type of his *Crypsidromus pentaloris*. The immature examples also prove to my complete satisfaction that the small immature spider sent me by M. E. Simon under the name *Cyclosternum ruficeps*, but described in the works quoted above [3] [4] as *Hapalopus ruficeps*, is an immature specimen of this same *H. pentaloris*.

The examination, too, of the male, enables me to place this species in that genus which Ausserer assigned to those Eurypelmiform spiders of which the males have two spurs beneath tibia i. and the scopula of tarsus iv. divided.

I have now before me five examples of the species all in different stages of development, ranging from about three weeks old up to full maturity.

It is noteworthy that in the first two forms (*Hapalopus ruficeps*, E. Sim., being the youngest) the tarsi of all four legs have the scopula divided, while the sternum is almost circular. In the next two more advanced forms the scopula of the last two pairs of legs alone is divided, and the sternum is more decidedly oval; while in the adult female (*Crypsidromus pentaloris*, E. Sim.) the scopula of tarsus iv. alone is divided, and the sternum is elongate-oval as it is in the adult male now before me.

An adult male and three immature females have been received from Mr. Sarg from Guatemala.

## METRIOPELMA.

*Metriopelma*, Becker, Compt. rend. Soc. Ent. Belg. xxi. p. cclvi (Dec. 1878).

This genus was instituted by M. Becker for the reception of his *Sericopelma breyeri*, from Guanajuato, Mexico, which had been erroneously included in Ausserer's *Sericopelma*. M. Becker's diagnosis of his genus leaves little doubt that its chief characteristic is the absence of spurs beneath tibia i., their place being taken by spines. The author says "par l'absence d'éperon au tibia du mâle" &c., while a few lines previously he says "chez le mâle, tibia de la première paire dépourvu d'épines, présentant en dessous, à l'extrémité, deux épines mobiles." Doubtless "d'épines" is a

misprint for "d'éperons"; and although M. Becker does not mention the two pairs of spines noticeable beneath the tibiæ of the first pair of legs, at the apex, in the species described below under the name *M. spinulosum*, still I have little doubt that this form is congeneric with *M. breyeri* of Becker. Whether it is specifically identical I cannot say, for Becker's figures are not sufficiently detailed to enable one to judge with certainty. The presence of the two longer teeth beneath the tarsal claws, however, would seem to indicate that the forms are specifically distinct.

The following generic diagnosis is taken from *M. spinulosum*:—

Femur iv. without scopuliform pad on the inner side. Protarsus ii. scopulate on the anterior half only. Protarsus iv. without scopula. Tibia i. (of male) without spurs at the apex, beneath, but with two pairs of spines only on the apical margin. Tarsus iv. with a narrow central longitudinal row of setæ beneath, dividing the scopula. Legs slender. Tibiæ and protarsi more or less spinose.

### 1. **Metriopelma breyeri.**

*Sericopelma breyerii*, Becker, Ann. Soc. Ent. Belg. xxi. p. 77, t. 2. figg. 1–6 (July 1878) [1].
*Metriopelma breyerii*, Becker, Compt. rend. Soc. Ent. Belg. xxi. p. cclvii (Dec. 1878) [2].

Type, ♂, in Museum Nat. Hist., Brussels.

*Hab.* Mexico, Guanajuato (*Dugès* [1]).

If the drawing of the fourth pair of legs in the figure given by Becker is correct, in which the protarsi are much shorter than the carapace, then it may be doubtful if the species is congeneric with *M. spinulosum*, described below.

### 2. **Metriopelma spinulosum,** sp. n. (Tab. II. figg. 12, 12 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin.

♂. Total length 29 millim. Carap. 12×11; ceph. area 8. Legs: i. 49; ii. 45; iii. 43; iv. 54. Pat.+tib. i. 15·25; iv. 15·25. Prot. i. 9; iv. 15. Sternum (not incl. labial plate) 5×5.

♂. Body and legs entirely clothed with rusty-brown pubescence and hairs. Fringing hairs of mouth-parts paler rusty-brown, but not rufous.

Carapace scarcely longer than broad. Protarsus i. slightly longer than cephalic area. Protarsus iv. much longer than carapace. Patella+tibia i. equal to patella+tibia iv. Protarsus iv. almost or quite equal to patella+tibia iv. Ocular tumulus one-third broader than long. Anterior row of eyes procurved, and otherwise as in *Eurypelma*. Sternum not longer than broad; sigilla, three pairs, indistinct. Apical fourth of labium furnished with numerous cuspules, as also is the inner anterior basal angle of the coxa of the pedipalp.

Legs long, slender; tibiæ and protarsi more or less spinose. Protarsus i. straight throughout (in profile), scopulate to the base, with a short stout spine on each side in the basal half. Protarsus ii. scopulate on apical half only, with three spines in the basal half. Protarsus iii. scopulate on the apical third only, with numerous spines on all sides. Protarsus iv. entirely devoid of scopula, even at the apex, with numerous spines on all sides. Tarsus iv. with a very narrow central longitudinal row of fine setæ beneath. Tarsal claws with 6–8 teeth. Tibia i. with two pairs of spines at the apex beneath, three more on the outer side, and two on the inner side. Tibia ii. similarly armed to tibia i. Central thoracic fovea small, deep, transverse-oval.

*Pedipalp*. Tibia furnished with five stout spines on the inner side at the apex. Bulb piriform, broadly pointed, and compressed at the apex, with some very minute serrations beneath. This form of bulb

resembles very much that of *Eurypelma longipes* and *E. serratum*; but all the species of *Eurypelma* may be distinguished by the double spur beneath tibia i., besides the row of setæ beneath tarsus iv.

*Hab.* GUATEMALA, Petaxcatum (*Sarg*), Chicoyoito (*von Turckheim*).

Two adult males have been taken in Guatemala—one (no. 653) at Chicoyoito by Herr von Turckheim, the other (no. 1409) at Petaxcatum by Mr. Sarg. The latter is taken as the type.

## ACANTHOPELMA, gen. nov.

Femur iv. without scopula on the inner side. Tarsal claws 2. Tarsi i., ii., iii., and iv., apical two-thirds of protarsi i. and ii., apical half of iii., and extreme apex of iv. very lightly scopulate. Tarsi i. and ii. with a single longitudinal central row of short spines, sometimes haired, beneath; tarsi iii. and iv. with a band of more numerous spines beneath. Protarsi i. and ii. with spines beneath. Tibia i. with a double spur at the apex beneath; the inner spur short, obtusely pointed, with a short conical spur at the base on the outer side; the outer spur larger, broadly clavate and bilobed at the apex, the inner lobe the largest. Tibia ii. with rows of spines beneath, not constant in number or arrangement. Tibiæ and protarsi iii. and iv. very spinose.

Carapace longer than broad, very flat or compressed in profile; fovea narrow, straight, transverse. Ocular group as in *Eurypelma*.

Mandibles with a single row of teeth on the inner margin of fang-groove. Sternum oval-elongate, longer than broad. Sigilla distinct, three pairs, submarginal, besides the labial basal impressions. Labium quadrate, its apical third studded with cuspules; base of coxæ of pedipalp also studded with cuspules over the inner anterior basal angle. Spinners 4, superiors as long as sternum; segments approximately equal in length, terminal segment slightly longer.

### 1. **Acanthopelma rufescens,** sp. n. (Tab. II. figg. 13, 13 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin.

♂. Total length 16·5 millim. Carapace 7 × 5·5. Legs: i. 23·5; ii. 21·5; iii. 18; iv. 25.

♂. Carapace dull purple-mahogany, clothed with fine rufous silky pubescence; mandibles clothed with three bands of rufous silky pubescence; sternum and legs clothed with rufous pubescence. Abdomen delicate purple-brown, with double dorsal series of three or four pale orange transverse bars.

The various points of structure have been detailed in the generic diagnosis.

*Hab.* GUATEMALA (*Sarg*).

A single adult male.

Although this form is undoubtedly allied to others of the group Chætopelmateæ founded by M. Simon, yet I prefer for the present to place it amongst the members of the subfamily Theraphosinæ.

## Fam. DIPLURIDÆ.

The unusual length of the spinners, which characterizes the more typical forms belonging to this family, is not noticeable in all those which are usually included in the group. The spinners are, however, set wide apart at their base, and the tarsal claws are three in number, these characters separating the Dipluridæ from the Theraphosidæ. The habits of the species of Dipluridæ are somewhat different from

those of the majority of the Mygalomorphæ, and offer an interesting illustration of the general similarity in form and structure which spiders of similar habit often exhibit. The Dipluridæ, especially the genera *Ischnothele*, *Euagrus*, *Diplura*, *Melodæus*, &c., with habits very similar to those of the Agelenidæ and Podophthalmidæ, are themselves, too, exceedingly similar in general character. We have the long spinners for weaving the broad sheet of web at the entrance of the burrow, the same excessive rapidity of movement, and, what is more curious, a very similar plan of coloration on the abdomen. At first sight, to one accustomed to the habits of the Agelenidæ in Europe, *Ischnothele* and *Podophthalmus* would be at once supposed to belong to this family, so strikingly alike are they in the nature of their web and tube, their elongate form, and in the character of their movements.

The family is very poorly represented amongst the forms from Central America, viz. by two species of *Euagrus*, four of *Ischnothele*, and one of *Fufius*. That this is anything like a fair representation of the family as actually existing in that region cannot be admitted for a moment, and future collectors will be able to add numbers of species and perhaps genera to this very interesting group.

The Central-American Dipluridæ belong to two subfamilies, which may be thus characterized :—

A. Protarsi and tarsi i. and ii. more or less scopulate. Tarsi not spinose beneath. Denticles of superior tarsal claws in a double series. Anterior spinners separated by two diameters of one of them at the base. — DIPLURINÆ.

B. Protarsi and tarsi i. and ii. not scopulate. Tarsi more or less spinose beneath. Denticles of superior tarsal claws in a single series. Anterior spinners separated at the base by at least the length of one spinner . . . . . — ISCHNOTHELINÆ.

## Subfam. *DIPLURINÆ*.

### FUFIUS.

*Fufius*, E. Simon, Ann. Soc. Ent. Fr. 1888, p. 213.

This interesting genus is distributed throughout Central America and the northern regions of South America, different forms occurring in Guatemala, Bolivia, and the Lower Amazons.

Closely allied forms, possibly not congeneric with those of the Neotropical region, are found in Madagascar according to Lenz, and in Australia according to L. Koch *.

* M. Simon (Hist. Nat. Araign. éd. 2, i. p. 180) refers all these forms to the single genus *Hapalothele*, Lenz, which is based on *H. varia* (L. Koch), from Fort Bowen, described under *Ixalus* (a preoccupied name, for which *Ixamadus* has been substituted by M. Simon). Whether the Madagascan, Oceanian, and Neotropical forms are really congeneric or not I am not in a position to judge, but prefer to keep to the older distinctions offered under the generic names *Hapalothele* for those of Oceania and Madagascar, and *Fufius* for those of America.

1. **Fufius atramentarius.** (Tab. II. fig. 10, and Tab. III. figg. 3, 3 *a–c*, ♀.)

*Fufius atramentarius*, E. Simon, Ann. Soc. Ent. Fr. p. 213 (♀) (1888) [1]; Act. Soc. Linn. Bord. xliv. p. 327 (1892) [2].

*Hab.* Guatemala [1 2].

The type specimen has been kindly submitted to me by M. E. Simon.

## Subfam. *ISCHNOTHELINÆ.*

The two genera of this subfamily may be thus differentiated :—

A. Base of mandible with two rows of stout teeth below, besides a short one of smaller teeth at the base. Coxa of pedipalp cuspulate at the base. Lateral anterior eyes slightly smaller than central anteriors. Central posterior eyes much smaller than central anteriors, linear-oval, their longitudinal diameter less than the diameter of the latter. Tibia i. of the male produced into a spinigerous spur at the apex beneath. Protarsus i. produced into a spur towards the base beneath. Tibia and protarsus ii. normal, not developed. Terminal joint of the posterior spinners more segmentate, flexuose, and attenuate to the apex, larger than both the basal joints taken together. Anterior spinners wide apart at the base, separated by a distance equal to one and a half times the length of a single spinner. Labium not quadrately impressed behind the base, but normally, biovately. Sternum scarcely longer than broad, circular. — Ischnothele, Auss.

B. Base of mandible with one row of stout teeth only below on the inner margin of the fang-groove. Coxa of pedipalp not cuspulate at the base. Lateral anterior eyes much larger than the centrals, their diameter nearly equal to one and a half times that of the latter. Central posterior eyes distinctly larger than the central anteriors, quadrate-piriform. Tibia i. of male not bearing a spur beneath, but with numerous stout long spines; protarsus i. also with numerous stout spines beneath. Patella i. with several stout spines beneath. Tibia ii. produced into a longer or shorter spinigerous spur beneath. Protarsus ii. produced into a low coniform spur at the centre beneath. Terminal joint of posterior spinners less flexuose, segmentate, and attenuate to the apex, as long as or scarcely longer than the second joint. Anterior spinners set closer together at the base, separated by a distance equal to, or less than, the length of a single spinner. Labium impressed broadly and quadrately at the base. Sternum much longer than broad, oval-elongate . . . . — Euagrus, Auss.

## ISCHNOTHELE.

*Macrothele*, subg. *Ischnothele*, Ausserer, Verh. zool.-bot. Ges. Wien, xxv. p. 162 (1875).

### *Males* *.

A. Size much larger. Tibia i. with a short broad spur at the apex beneath, the latter bearing 8 or 9 short stout spines at the tip. Conical spur beneath protarsus i. rather less than halfway from the base of the joint. Tarsus i. with 2 or 3 fine spines only on the inner side beneath. Bulb of palpus much more elongate at the apex and less sinuous . . . . . *digitata*, O. P.-Cambr.

B. Size much smaller. Tibia i. with a narrow, more slender, and elongate spur at the apex beneath, the latter bearing four stout spines only at the tip. Conical spur beneath protarsus i. midway between the base and apex of the joint beneath. Tarsus i. with 3 spines on the outer side, but with from 15 to 20 short stout spines set in irregular double series on the outer side beneath. Bulb of palpus less elongate and more decidedly sinuous towards the apex . . . *guianensis*, Walck.

### *Females.*

A. Carapace unicolorous testaceous-brown.

i. Abdomen unicolorous, clothed with silky rufous-golden pubescence. Legs unicolorous. Length 11 millim. . . . . *caudata*, Auss.

ii. Abdomen with a central dorsal longitudinal series of transverse pale orange (or yellow) Λ-shaped bars, the first half separate, the second united on the median line. Legs annulated and spotted with brown.

*a*. Size larger: length 18 millim. . . . . *digitata*, O. P.-Cambr.

*b*. Size smaller: length 10–11 millim.

i. Abdomen black, spotted with dull testaceous, and on the second half ornamented with two rows of short, oblique, testaceous lines, three on each side . . . . . *zebrina*, E. Simon.

ii. Abdomen dull purple-brown, speckled with dull testaceous spots on the sides and apex; with a central dorsal longitudinal series of 6 transverse dull orange Λ-shaped bars, the first three separate, the second three united on the median line . *guianensis*, Walck.

B. Carapace margined with a broad band of dull orange . . . . . [*siemensi*, F. P.-Cambr., and *pusilla*, E. Sim., from Brazil.]

### 1. **Ischnothele digitata.** (Tab. II. figg. 8, 8 *a–d*, ♂.)

*Macrothele digitata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. p. 92 (♂ ♀), t. 12. figg. 3, 3 *a–d* (♂) [1].

*Hab.* GUATEMALA, Cubilguitz, Chamiquin, Tucuru, Escuintla (*Sarg* [1]).

For figures of the mandible, spinners, and tibia i., see Tab. II. figg. 8, 8 *a–d*.

* I do not know the males of *I. caudata* or *I. zebrina*.

### 2. **Ischnothele caudata.**

*Ischnothele caudata,* Auss. Verh. zool.-bot. Ges. Wien, xxv. p. 163 (1875) [1]; E. Simon, Act. Soc. Linn. Bord. xliv. p. 328 (1892) [2].

Type, ♀, in Brit. Mus., ex coll. Keyserling.

*Hab.* Mexico, Yucatan [1 2].

### 3. **Ischnothele zebrina.**

*Thelechoris zebrina,* E. Simon, Act. Soc. Linn. Bord. xliv. p. 329 (♀) [1].

*Hab.* Nicaragua, Polvon (*Packard* [1]).

There is no doubt whatever that the New World forms referred by authors to Karsch's genus *Thelechoris* belong to Ausserer's genus *Ischnothele.*

### 4. **Ischnothele guianensis.** (Tab. II. fig. 9, ♂.)

*Mygale guianensis,* Walck. Hist. Nat. Ins. Apt. p. 23 (♂) (1837) [1].

♂ & ♀. Carapace unicolorous mahogany-brown, the margins darker. Legs pale yellow beneath; coxæ pale yellow; femora darker at the apex above; tibiæ and protarsi pale yellow, each with a basal and apical annule of dark brown; tarsi yellow. Sternum pale yellow. Abdomen dark purple-brown, with a double central dorsal series of three minute oblique pale dots. Basal joint of the spinners pale yellow, its apex dusky beneath; second joint brown; terminal joint brown at the base, pale yellow towards the apex.

♂. General characters as in other species of the genus. The specific character is furnished by tibia i., whose apical spur is narrow, elongate, and armed with four stout spines at the apex, while the protarsus bears in the centre beneath a small, stout, sharp, coniform spur, its apex directed inwards. Tarsus i. numerously spinose on the inner side beneath, 3 or 4 spines only on the outer side.

*Hab.* Costa Rica (*Rogers*).—Guiana [1].

Five females and one male of this small species were taken by Mr. Rogers in Costa Rica, but the exact locality is doubtful. *I. guianensis* is very similar in general appearance to *I. digitata,* but is much smaller, and differs in some essential points of structure in the male sex. I have identified this species from males and females thus named by M. Simon in the British Museum.

## EUAGRUS.

*Euagrus,* Ausserer, Verh. zool.-bot. Ges. Wien, xxv. p. 160 (1875).

Type *Euagrus mexicanus,* Auss.

I have not seen the type of this genus, and my knowledge of it is based on a specimen (♀) identified by M. Simon, and kindly submitted for examination. So far as one can judge, there seems no reasonable doubt that this specimen is generically and specifically identical with Ausserer's form, though a glance at the type would be more satisfactory.

Tarsal claws 3. Spinners set wide apart at the base. Terminal joint of the posterior spinners scarcely longer than the second, not flexuose or segmentate, scarcely attenuate.

Base of the coxa of pedipalp and apex of the labium not cuspulate. Inner margin of fang-groove only with a row of teeth, outer row plain (♂ & ♀).

Tibia i. of male not armed with a spur, merely incrassate and spinose; protarsus i. not developed. Tibia ii. developed into a strong spinigerous spur at the base beneath; protarsus ii. developed towards the apex, beneath, into a short spur (see Ausserer's figure), towards the base (see Simon's figure). Tibiæ and protarsi i. & ii. (♀) incrassate, the latter set with numerous spines towards the apex beneath. Tarsi (♀) set with a double row of spines beneath. Lateral anterior eyes much larger than centrals; diameter of latter equal to the transverse diameter of the former. Anterior spinners separate at the base by a distance equal to the length of one of them.

### 1. **Euagrus mexicanus.** (Tab. II. figg. 4, 4 *a*, *b*, ♀.)

*Euagrus mexicanus*, Auss. Verh. zool.-bot. Ges. Wien, xxv. p. 160, t. 5. figg. 13–15, t. 6. fig. 16 (♂ ♀) (1875)[1]; E. Simon, Act. Soc. Linn. Bord. xliv. p. 328 (1892)[2].

*Hab.* Mexico (*coll. O. P.-Cambridge*[1]), Cuernavaca (*Boucard*[2]); Guatemala[2]; Costa Rica (*Getaz*[2]).

I cannot quite reconcile the description of the eyes and clypeus of *Euagrus mexicanus* with facts as presented by the female now before me; but errors in observation of these parts are only too easy to make, and little weight need be attached to the discrepancy in this case.

Our figures are taken from a specimen identified as Ausserer's species by M. E. Simon, and now in his collection.

### 2. **Euagrus guatemalensis,** sp. n. (Tab. II. figg. 7, 7 *a–f*, ♂.)

Type, ♂, in coll. Godman & Salvin.

♂. Total length 13 millim.

♂ ♀. Carapace, sternum, legs, mandibles, and pedipalp pale mahogany-brown; the carapace veined and suffused with dusky brown. Abdomen dull purple-brown, anteriorly striped on each side with three large pale slashes continued to the spinners by a double series of three short pale oblique bars. In some specimens the lateral slashes are obsolete, except where they converge dorsally; in this case the abdomen presents a double dorsal series of six short, narrow, obliquely divergent bars.

♂. Eyes closely grouped; diameter of central anteriors equal to half the longitudinal diameter of the lateral anteriors; central posteriors distinctly larger than the central anteriors. Tibia ii. with five stout spines set on a low protuberance beneath. Protarsus i. with a bilobate prominence in the centre beneath; the inner lobe larger and conical, the outer lower and more rounded. Tibia i. numerously spined beneath. Patella i. with three stout spines at the apex beneath. Protarsus i. with an irregular double series of spines beneath. Tarsus i. with a few spines beneath.

Mandibles with an inner row of teeth only. Terminal joint of spinners almost as long as the two basal joints together, slightly flexuose, attenuate and segmentate (but not nearly so much so as in *Ischnothele*). Labium without cuspules. Coxæ of pedipalp without cuspules. Sigillate impression at the base of the labium transverse-quadrate. Sternum oval-elongate; sigilla in three pairs; submarginal mandibles clothed with a thick tuft of hairs (seen in profile) on the upperside of the base.

The structure of the female is similar, but the tibiæ and protarsi of the first two pairs of legs are not enlarged but similar to the other joints.

*Hab.* Guatemala (*Sarg*).

At first sight there is nothing to distinguish this interesting species from *Ischnothele caudata*, Auss., and perhaps *I. zebrina* (Sim.) and *I. guianensis* (Walck.). The

coloration is precisely the same, and it is curious to note that the dorsal row of short oblique bars on the abdomen is characteristic also of members of a totally different family, whose habits are, however, remarkably similar, namely, the Agelenidæ—with the common *A. labyrinthica* as an example.

The double row of teeth on the fang-groove, the cuspulate labium, the approximately equal size of the anterior row of eyes in the female, and the development of tibia i. instead of tibia ii. in the male, will suffice for the distinguishing of all the true *Ischnothele*.

Several females and one adult male were taken by Mr. Sarg.

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The following genera and species of Mygalomorphæ have been described from Central America; but as there is some doubt about their true affinities, I prefer to place them here :—

## TAPINAUCHENIUS.

*Tapinauchenius*, Ausserer, Verh. zool.-bot. Ges. Wien, xxi. p. 200 (1871).

### Tapinauchenius reduncus.

*Tapinauchenius reduncus*, Karsch, Zeitschr. f. ges. Naturw. liii. p. 387 (♂ ♀) (1880)[1].

*Hab.* Costa Rica (*Hoffmann, in Mus. Berol.*[1]).

## ISCHNOCOLUS.

*Ischnocolus*, Ausserer, Verh. zool.-bot. Ges. Wien, xxi. p. 184 (1871).

### Ischnocolus sericeus.

*Ischnocolus sericeus*, Auss. Verh. zool.-bot. Ges. Wien, xxv. p. 169 (1875)[1]; E. Simon, Act. Soc. Linn. Bord. xliv. p. 329 (1892)[2].

Type, ♀, in coll. Keyserling (but not in coll. Keyserling in Brit. Mus.).

*Hab.* Mexico, Yucatan[1 2].

I am inclined to suspect that this spider will prove to be merely the young of some species of *Eurypelma* or other genus, for Ausserer himself says, "wahrscheinlich ein junges Thier."

## CYCLOSTERNUM.

*Cyclosternum*, Ausserer, Verh. zool.-bot. Ges. Wien, xxi. p. 192 (1871).

### Cyclosternum obscurum.

*Cyclosternum obscurum*, E. Simon, Act. Soc. Linn. Bord. xliv. p. 331 (1892)[1].

Type, ♀, in coll. E. Simon, Paris.

*Hab.* Mexico[1].

Of this form, of which an immature female is before me, one can say nothing except that, for all evidence to the contrary, it may well be the young of some species of *Eurypelma* or other closely allied genus. It is especially to be borne in mind that the circular form of the sternum is characteristic of immature specimens of most Eurypelmiform spiders.

## CRATORRHAGUS.

*Cratorrhagus*, E. Simon, Act. Soc. Linn. Bord. xliv. p. 330 (1892).

Type *Cratorrhagus concolor*, Simon.

### Cratorrhagus cervinus. (Tab. II. figg. 1, 1 *a–c*, ♀.)

*Cratorrhagus cervinus*, E. Simon, Act. Soc. Linn. Bord. xliv. p. 330 (1892) [1].

Type, ♀, in coll. E. Simon, Paris.

*Hab.* Mexico [1].

The type of *C. cervinus*, which is now before me, is certainly not congeneric with a specimen of *C. concolor* from the Mediterranean, so far as one can judge from an immature specimen. But I would not hazard an opinion with specimens not yet adult, and I hesitate therefore to tabulate the characters of the female from Mexico.

## MYGALARACHNE.

*Mygalarachne*, Ausserer, Verh. zool.-bot. Ges. Wien, xxi. p. 206 (1871).

### Mygalarachne brevipes.

*Mygalarachne brevipes*, Auss. loc. cit. p. 206 [1]; Simon, Act. Soc. Linn. Bord. xliv. p. 339 [2].

Type, ♀, in Vienna Museum.

*Hab.* Honduras [1 2].

Without opportunity of examining the type I am unable to offer any opinion as to the systematic position of this spider. Neither does Ausserer give any descriptive clue as to its identity, save only "die Sammtbürste am innerrande der Schenkel fehlt."

## DAVUS.

*Davus*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 91 (1892).

Femora iv. not scopulate on the inner side. Protarsi i. and ii. scopulate beneath in their apical half only. Protarsus iv. not scopulate, very spinose. Tibia i. with two short spurs at the apex beneath.

### Davus fasciatus. (Tab. III. figg. 4, 4 *a–d*, ♂.)

*Davus fasciatus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 91 (♂) [1].

*Pella fasciata*, O. P.-Cambr. loc. cit. t. 12. figg. 4, 4 *a–d* (♂).

*Hab.* Costa Rica (*Boucard* [1]).

The type of this genus and species is a male, dry, and rather the worse for wear. I

am unable to ascertain whether the tarsal pad is or is not divided by a row of setæ, so that I leave the species at present distinct from *Eurypelma*. It belongs, if the tarsal pad be not divided, to the Homœommateæ, characterized by the apical half only of protarsus ii. being scopulate. I cannot myself, however, recognize this character alone as sufficient for a sectional distinction, or even perhaps for a generic, but rather as characteristic of a group within the genus *Eurypelma*.

### AVICULARIA.

*Avicularia*, Lamarck, Hist. Nat. Anim. sans Vert. v. p. 107 (1818).

Type *Avicularia avicularia*, Linn. = *Avicularia canceridea*, Lam.

#### Avicularia glauca.

*Avicularia glauca*, E. Simon, Ann. Soc. Ent. Fr. 1891, p. 312[1]; Act. Soc. Linn. Bord. xliv. p. 339 (1892)[2].

Type, ♀, juv., in coll. E. Simon, Paris.

*Hab.* Panama[1 2].

The type specimen, kindly submitted to me for examination by M. Simon, is evidently an immature example, and it will always be difficult to decide exactly as to which particular species of *Avicularia* it belongs.

## Section ARACHNOMORPHÆ.

### Fam. DYSDERIDÆ.

Lung-sacs two; tracheal stigmata two; the four stigmatic orifices closely grouped; posterior pair not convergent, coalescent or migrant. Tarsal claws variable, two or three. Eyes six, in three groups of two each. Spinners six. Colulus small, but very distinct. Calamistrum and cribellum absent. Mandibles not striate on the outer side; femur of palpus with no spur or opposing spine.

This family is very scantily represented at present in the material obtained from Central America, one (or two) species only, of the genus *Ariadna* alone *, having been taken, which belong to the subfamily Segestriinæ.

### Subfam. *SEGESTRIINÆ*.

Eyes in three groups, each consisting of a pair of eyes. Tibiæ and protarsi i., ii., and iii. armed beneath with stout spines. Protarsus iv. also with a few spines beneath, but not tibia iv. Tarsal claws three; anterior pair of spinners stouter and longer than the others, closely situate at the base, with small, distinct colulus.

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* *Ariadne mexicana*, Banks, Trans. Calif. Acad. Sci. i. p. 212 (May 1898): the locality given for this species, La Chuparosa, is in Lower California (*cf.* loc. cit. p. 207), so that the species cannot be included in the present list.

The members of this subfamily live in tubular retreats, usually constructed in the crevices of the woodwork of buildings or in the corners of window-frames, and sit with the anterior pair of legs exposed at the entrance of the funnel.

### ARIADNA.

*Ariadna,* Audouin, in Savigny's Descr. de l'Egypte, ed. 2, xxii. p. 308 (1825–1827).

Type *Ariadna insidiatrix*, Aud.

#### 1. **Ariadna pilifera.**

*Ariadne pilifera,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 235, t. 30. figg. 9, 9 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin.

♀. Total length 14·5 millim.

*Hab.* Mexico, Ventanas in Durango (*Forrer* [1]).

#### 2. **Ariadna comata.**

*Ariadne comata,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 235, t. 30. figg. 8, 8 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin.

♀. Total length 8 millim.

*Hab.* Mexico, Orizaba (*H. H. Smith* [1]).

## Fam. CAPONIIDÆ.

Eyes two. Lung-sacs absent. Two pairs of tracheal stigmata, adjacent, close to the genital rima. Mandibles not soldered together. Sternum without sigilla. Spinners six, anterior pair wide apart, separated by at least four diameters; the four anteriors set in a transverse straight line. Colulus absent. Calamistrum and cribellum absent. Tarsal claws variable, two or three. External side of mandibles striate. Femur of palpus with a single stridulatory spine towards the base on the inner side.

The spiders included in this family are, with one exception, confined to the Antilles and the northern regions of South America. It is highly probable, however, that the genus *Nops*, Macl., will be found to extend to the Isthmus of Panama, *N. glauca*, v. Hasselt, having been recorded from the islands of Buen Ayre, Oruba, and Curaçao, off the coast of Venezuela; we therefore figure the structural details of a species of this genus, *N. coccineus*, E. Simon, from Venezuela, the type of which is in the British Museum. (See Tab. III. figg. 7, 7 *a–f*, ♀.)

A. Tarsal claws two only on tarsi i. and ii., three on tarsi iii. and iv. Tarsi of all four pairs bisegmentate. Tarsi i. and ii. with a membranous appendage at the base beneath. Protarsi i. and ii. with a thin membranous lamina extending longitudinally beneath the joint. Sternum not prolonged between the coxæ of the fourth pair of legs, its apex quite distinct from the post-sternal plagula. Epigynal area not coriaceous. Maxillæ less elongate and less attenuate at the apex . . . . [Nops, Macleay.]

B. Tarsal claws three on all four pairs. Tarsi unisegmentate. Tarsi and protarsi i. and ii. without membranous appendages beneath. Sternum prolonged between the coxæ of the fourth pair of legs, its apex soldered to the post-sternal plagula. Maxillæ more elongate and more attenuate towards the apex . . . . . CAPONINA, E. Sim.

## CAPONINA.

*Caponina*, E. Simon, P. Z. S. 1891, p. 573.

Type *C. testacea*, E. Sim.: Antilles, St. Vincent.

Eyes two only. Tarsal claws three. Tarsi not scopulate. Ungual tufts absent. Anterior protarsi flexuose, striate, furnished beneath with a double row of short stiff hairs. Mandibles with striations on the outer side. Femur of palpus with a small tooth on the inner side.

### 1. **Caponina sargi**, sp. n. (Tab. III. figg. 6, 6 *a–h*, ♀.)

Type, ♀, in coll. Godman & Salvin.

♀. Total length 13 millim., carap. 4 millim.

Carapace, sternum, mandibles, and legs orange-yellow. Abdomen grey. Eyes two, situate on black spots. Mandibles furnished with striations on the outer side, opposed to a small tooth on the inner side of the femur of the palpus.

*Hab.* GUATEMALA (*Sarg*).

A single adult female and two immature specimens were found by Mr. Sarg.

## Fam. OONOPIDÆ.

This family, instituted by M. Simon for the genus *Oonops*, Templ., and eighteen other genera, is distinguished from the Caponiidæ by the possession, in common with the Dysderidæ, of two lung-sacs and two tracheal stigmata, the latter closely situated together on the genital rima. Eyes six, large, opaline, nearly always occupying the total width of the carapace. There are no stridulating-organs and no calamistrum or cribellum.

## DYSDERINA.

*Dysderina*, E. Simon, P. Z. S. 1891, p. 556.

Type *D. principalis*, Keys.

Abdomen with dorsal and ventral scutum, not extending to the spinners. Posterior row of eyes straight. Tibiæ and protarsi i. and ii. armed beneath with a double series of long spines. Mandibles not striate on the outer side. Femur of palpus without stridulatory spine on the inner side. Tarsal claws two, with double series of teeth, set on a short onychium. Spinners six, colulus absent.

### 1. **Dysderina plena.** (Tab. III. figg. 5, 5 *a*, ♀.)

*Dysderina plena*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. 143, 192, t. 17. figg. 7, 7 *a–d* (♀), t. 24. figg. 4, 4 *a–e* (♂)[1].

Types, ♂ ♀, in coll. Godman & Salvin.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith* [1]).

## Fam. LEPTONETIDÆ.

### OCHYROCERA.

*Ochyrocera*, E. Simon, P. Z. S. 1891, p. 565.

Type *Ochyrocera arietina*, E. Sim.: Antilles, St. Vincent.

### 1. Ochyrocera simoni.

*Ochyrocera simonii*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 122, t. 17. figg. 13, 13 *a–d* (♂)[1].

Type, ♂, in coll. Godman & Salvin.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

## Fam. FILISTATIDÆ.

Lung-sacs two; tracheal stigmata migrant, convergent, situated halfway between the genital rima and the spinners. Spinners six; calamistrum and cribellum present. Two pairs of sternal sigilla sometimes present. Palpal bulb of male very simple. Mandibles soldered together at the base, forming with the labium and maxillæ a stout, haustellate proboscis. No striæ present on the outer side of the mandibles. Eyes eight, closely grouped in the centre of the cephalic area. Tarsal claws three. Superior claws with a single row of ten to twelve teeth, inferior claw sometimes with one or two.

There is considerable difficulty in ascertaining exactly where the Filistatidæ should be placed amongst the other families of the section Arachnomorphæ; and the same remark applies to all the other cribellate forms, and also to others not cribellate. No linear arrangement, such as one is compelled to adopt in a printed work, can in any way convey a correct idea of the affinities of different families.

With regard to the cribellate forms, there appears to be no reason why the cribellum and correlated calamistrum should not have become independently specialized in several different groups, each of these groups falling under different surrounding influences as they developed. The appendages which have been converted into the cribellum have survived in these cases, and are now obsolete in other forms recognized as non-cribellate. The rudiments of the cribellum, and bristles adapted for specialization as a calamistrum, were probably possessed at one time by all existing forms of spiders; while a more or less highly specialized form of each was characteristic of certain large groups, not necessarily otherwise closely allied.

In some groups these rudiments and specializations have been retained, and in some they have more or less entirely disappeared, while at the same time further differentiation and specialization under various influences was taking place in different directions. This will account for the presence of a highly specialized calamistrum and cribellum amongst forms which are otherwise, obviously, not in any respect nearly related to each other.

The possession of sternal sigilla, the character and grouping of the eyes, as well as the simple form of the palpal bulb, would seem to show that the Filistatidæ are alone

survivors of some primitive group, suggesting a distant relationship with the Theraphosidæ in some respects, but in others far removed from them, and indeed from the majority of existing forms, by wide morphological gulfs, the connecting links having long since passed away.

These isolated families, such as the Filistatidæ, Hypochilidæ, Caponiidæ, Dysderidæ, &c., are, in short, probably nothing more than the mountain-peaks of faunal continents which have long been submerged beneath the waters of eliminating agencies. These still lift their heads above them, but their near relations have perished and left no trace behind.

In other spheres of evolution we recollect that the Basque and Etruscan systems of speech, which can claim kindred with no existing family of language, are excellent instances of the same phenomenon.

The family Filistatidæ can be conveniently divided into two genera, which may be distinguished by the following characters:—

A. Anterior tibiæ and protarsi with rows of stout spines beneath. Protarsi i. and ii. with stout spines at the apex beneath. Sternum scarcely longer than broad, with two pairs of sigilla (sometimes obsolete). Central anterior eyes smaller than central posteriors; anterior and posterior centrals almost contiguous . . . . . FILISTATA, Latr.

B. Anterior tibiæ and protarsi without rows of spines beneath. Protarsi i. and ii. without spines at the apex. Sternum distinctly longer than broad, without sigilla. Central anterior eyes equal to central posteriors; anterior and posterior centrals half a diameter apart . . FILISTATOIDES, gen. nov.

## FILISTATA.

*Filistata*, Latreille, Consid. gén. Crust., Arachn., et Ins. p. 121 (1810).

Type. "Espèce inédite trouvée aux environs de Marseille."

Lung-sacs two in number; tracheal stigmata two, situated midway between the lung-sacs and the spinners. Spinning-mamillæ six; calamistrum and cribellum present. Two pair of sternal sigilla present. Mandibles soldered along their inner margins, forming, with the labium and maxillæ, which are also soldered together, a haustellate proboscis. Eyes eight, in two closely situate groups of four on each side of a cephalic eminence. Thoracic fovea deep.

A. Apical portion of palpal bulb shorter, strongly sinuous; apex broader, almost geniculate, strongly curved outwards (inner anterior aspect). *hibernalis*, Hentz.

B. Apical portion of palpal bulb longer, attenuate, filiform, only slightly sinuous, almost straight throughout; apex slightly curved inwards (inner anterior aspect) . . . . . *tractans*, O. P.-Cambr.

*Females.*

A. Femora and tibiæ of legs more slender, not clothed beneath with thick black hair . . . . . *hibernalis*, Hentz.

B. Femora and tibiæ of legs stouter, clothed beneath, especially i. and ii., with thick black hair . . . . . *tractans*, O. P.-Cambr.

1. **Filistata hibernalis.** (Tab. III. figg. 8, 8 *a*, *b*, ♀; 8 *c*, ♂.)

*Filistata hibernalis*, Hentz, Spid. U. S. p. 23, t. 2. figg. 6, *a*, *b* [1]; Banks, Trans. Calif. Acad. Sci. (3) i. p. 208 [2].

*Filistata distincta*, Blackw. Ann. & Mag. Nat. Hist. (3) xx. p. 202 (1867) [3].

*Filistata tractans*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 290 (♀) [4].

*Hab.* North America, Carolina and Alabama [1], Lower California [2].—Mexico, Guaymas, Tepic, and San Miguel de Horcasitas (*Banks* [2]), Orizaba [4], Teapa (*H. H. Smith*); Guatemala (*Sarg*).—Argentina; Antilles, Jamaica [3], &c.

Whether this species and *F. capitata*, Hentz, are identical or not I cannot at present say for certain; but there is no doubt as to the species which Hentz regarded as *F. hibernalis*. The figure of the palpus of the male is quite sufficient for its identification. Curiously enough, some authors seem to have regarded this figure of the palpal bulb as that of *F. capitata*, Hentz; whereas a glance at the text will show that figg. 6, *a*, *b*, refer to the male of *F. hibernalis* and not to that of *F. capitata*. As to Blackwall's species *F. distincta*, it is impossible to decide from his description what it may be; but most probably it is identical with this form, which occurs commonly in several islands of the Antilles.

2. **Filistata tractans.** (Tab. III. figg. 9, 9 *a–c*, ♀; 9 *d*, ♂.)

*Filistata tractans*, O. P.-Cambr. Biol. Centr. Amer., Arachn. Aran. i. p. 183, t. 23. figg. 4, 4 *a–d* (♂) [1].

*Filistata capillosa*, O. P.-Cambr. loc. cit. p. 289, t. 32. figg. 1, 1 *a–d* (♀) [2].

Types, ♂ ♀, in coll. Godman & Salvin.

*Hab.* Mexico, Amula [1 2], Omilteme [2], Chilpancingo, and Venta de Zopilote, all in Guerrero (*H. H. Smith*).

Numerous adult males and females have been seen.

## FILISTATOIDES, gen. nov.

Characters as in *Filistata*, except that the anterior tibiæ and protarsi are without rows of spines beneath. Protarsi i. and ii. without spines at the apex. Sternum distinctly longer than broad, without sigilla. Central anterior eyes equal in size to central posteriors. Anterior and posterior centrals half a diameter apart.

1. **Filistatoides insignis.** (Tab. III. figg. 10, 10 *a*, *b*, ♂.)

*Filistata insignis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 211, t. 26. figg. 12, 12 *a–d* (♂), t. 28. figg. 8, 8 *a*, *b* (♀) [1].

Types, ♂ ♀, in coll. Godman & Salvin.

*Hab.* Guatemala, Valley of the Motagua and San Antonio (*Sarg* [1]).

An adult male and a female of this very distinct, though small, species were taken in Guatemala.

## Fam. SCYTODIDÆ.

**Eyes six. Lung-sacs two. Tracheal stigmata two, more or less remote from the genital rima. Mandibles soldered together at their base. Sternum without sigilla. Calamistrum and cribellum absent. Spinners six, with the colulus more or less well developed or absent. Tarsi with or without an onychium. Tarsal claws two or three. Mandibles with the external side striate. Femur of the palpus having one or more stridulating-spines on the inner side towards the base. Legs shorter, stouter, and somewhat laterigrade in articulation (*Sicarius*, *Loxosceles*, and *Sicarioides*), longer and more slender (*Scytodes*), spinose or clothed with simple fine hairs only. Palpal bulb of male simple, more complex in *Diguetia*. Vulva of female simple, externally consisting of a transverse rima only.**

The family Scytodidæ includes four very distinct groups of spiders, comprised in the subfamilies Sicariinæ, Loxoscelinæ, Diguetiinæ, and Scytodinæ. There seems to be no sufficient reason for substituting the name Sicariidæ for the older name Scytodidæ, which latter has therefore been restored.

These subfamilies resemble each other in several characters, chiefly in the number of eyes and the possession of a stridulating-organ on the mandibles and the femur of the palpus. This structure is, however, found also in other groups, notably in *Caponina*, a two-eyed form of the family Caponiidæ, and in *Lepthyphantes*, *Tmeticus*, &c., amongst the Argiopidæ (Simon). They resemble each other also in the haustellate formation of the mouth-parts, beautifully constructed so that when the apices of the mandibles are brought together they form with the apices of the maxillæ a perfect suctorial apparatus, the mandibles being guarded in front of the fang by a soft chitinous piece serving to prevent the juices from escaping between the mandibles at their apex in front. The simple form of the vulva and that of the palpal organs of the male also prove the affinity of these forms.

The differences between these four subfamilies are very marked, though *Sicarius* and *Loxosceles* appear to be more closely allied to each other. The latter resembles *Scytodes* in the possession of a tarsal onychium and of a similarly constructed stridulating-apparatus, though otherwise, in general form, being much more like *Sicarius*. *Diguetia*, on the other hand, with its three tarsal claws, resembles *Scytodes*, and with its four femoral stridulating-spines, and in the absence of the colulus between the anterior spinners, approaches *Sicarius*, yet in the absence of the mandibular membrane and in the general form of the body differs from all three.

### Subfam. *SICARIINÆ*.

**No colulus between anterior spinners. Anterior row of eyes approximately straight. Lateral eyes wide apart. Tarsal claws two, not set on an onychium. Clypeus very high, almost vertical. External side of mandible finely striate. Inner side of femur of palpus set with 5 or 6 short stout stridulatory spines. Mandibles with a membranous lip on the outer side at the apex. Palpus of female without a claw or claw-like appendage at the apex. Anterior margin of maxillæ not strengthened by a chitinous serrula. Carapace compressed. Central thoracic groove shallow and inconspicuous. Body and legs clothed with regular rows (or small groups on the body) of longer and shorter spines and bacilliform hairs.**

The genus *Sicarius* may eventually be found in Central America, and we have therefore figured the details of structure of *S. thomisoides*, Walck., from Chilian specimens in the British Museum. (See Tab. III. figg. 11, 11 *a–k*, ♀.)

A. Sternum longer than broad, rather produced behind, narrowed and finely bilobate. Legs furnished beneath with rows of numerous long spines, in addition to the lines of smaller ones. Carapace convex, smooth, without warts or prominences, with simple convergent lines of fine bristles. Femora with simple spines only . . . . . [SICARIUS, Walck.*]

B. Sternum broader than long, not produced or so much narrowed behind, broadly bilobate. Legs without rows of long spines in addition to the smaller ones. Carapace compressed, bearing warts set with bacilliform hairs. Femora with tufts of bacilliform hairs on the dorsal side . . . . . SICARIOIDES, gen. nov.

## SICARIOIDES, gen. nov.

### 1. **Sicarioides rugosus,** sp. n. (Tab. III. figg. 12, 12 *a*, *b*, ♀.)

Type, ♀, in Mus. Brit.

♀. Total length 10·5 millim.; carapace 4·5 × 5 millim.

♀. *Colour.* Body and legs entirely rich chocolate-brown, marked with black obscure blotches.

♀. *Structure.* Carapace very broad, quite flat, rugulose, with distinct warts, bearing bacilliform hairs. Legs clothed with numerous short stout hairs, the femora bearing dorsally numerous tufts of three or four white bacilliform hairs. The tibiæ, protarsi, and tarsi with numerous short sharp spines arranged in longitudinal rows, but no long spines as in *Sicarius*. Sternum broader than long, entirely clothed with short, closely-clustered, bacilliform spines. Eyes as in *Sicarius*.

*Hab.* COSTA RICA, Bebedero.

## Subfam. *SCYTODINÆ.*

Colulus present between the anterior spinners. Anterior rows of eyes very strongly recurved. Lateral eyes in contact. Tarsal claws three (inferior claw often obsolete), set on a long, very distinct onychium. Clypeus narrow, oblique. External side of mandible finely striate (less closely than in the three other subfamilies of Filistatidæ). Inner side of the femur of the palpus set with one short stridulatory spine. Mandibles with a membranous lip on the outer side at the apex (less developed than in the Loxoscelinæ and Sicariinæ). Palpus of female with two or three claw-like appendages at the apex. Anterior margin of maxillæ strengthened by a chitinous rim, finely serrulate. Carapace very convex and raised posteriorly. Thoracic stria present, but no groove. Body and legs clothed with shorter and longer fine hairs.

The species belonging to this subfamily are very widely distributed, being found in every quarter of the globe; they are, however, confined to the tropical and subtropical regions, gradually disappearing in the temperate zones. These spiders are found under

* It is unfortunate that one cannot restore to this genus the name *Thomisoides*, given to it by Nicolet. Walckenaer had seen Nicolet's unpublished figures, but, on the ground that the name given to the genus was unsuitable, substituted *Sicarius*.

logs of wood, stones, the bark of trees, &c., and are often abundant in the angles of windows and the corners of dwelling-houses, where they spin a slight web and rest in a crouching position. The known species number between forty and fifty, but there is little doubt that many more remain to be discovered.

## SCYTODES.

*Scytodes*, Latreille, Nouv. Dict. d'Hist. Nat. xxiv. p. 134 (1804).

Type, *S. thoracica*, Latr. *Hab.* Europe.

Of the species of this genus occurring in Central America, three only are known to me; they may be distinguished as follows:—

A. Sternum smooth or clothed with fine hairs only (♂); legs annulated, streaked, or speckled with black.
  *a*. Legs yellow, entirely spotted and annulated with black, except the tarsi. Carapace and sternum variegated with black, without U-shaped central mark. Abdomen pale brown, more or less streaked and speckled with black. Mandible in both sexes with a series of conspicuous striæ on the outer side and a minute cusp at the base of the femur of the pedipalp on the inner side. Ventral surface of abdomen of the female with a pair of adjacent, elongate-oval, dark chitinous depressions, immediately behind the genital rima. Palpal bulb short, broad-ensiform, its apex exhibiting a short sharp spur. Anterior central eyes fully one diameter from the anterior margin of the clypeus . . . . . *longipes*, Luc.
  *b*. Legs pale yellow, with a few linear black spots and lines beneath the femora and on the dorsal surface and sides of the tibiæ, whose apex is very distinctly black. Carapace reticulated with brown, with a central conspicuous U-shaped mark, its apex emarginate and resting on the central line towards the posterior margin, the two branches directed forwards. Sternum sometimes unicolorous, often delicately margined and speckled with brown. Mandible with scarcely a trace of striation on the outer side, but the femur of the pedipalp exhibits a distinct minute spine at the base on the inner side. Palpal bulb elongate, geniculate, much developed, dilate towards the apex, lamelliform. Anterior central eyes less than half a diameter from the anterior margin of the clypeus . . . *championi*, sp. n.
B. Sternum clothed with stout papilliform hairs or spines (♂). Legs unicolorous; apex of femora and tibiæ darker. Carapace dark fuscous-brown, with a central narrow longitudinal pale band, enclosing a finer dark streak; also a pale lateral area broken and reticulated with brown. Abdomen pale purple-brown, with or without transverse pale bars. Palpal bulb elongate, ensiform, terminating in a fine filiform spine . . . . . *hebraica*, E. Sim.

### 1. **Scytodes longipes.** (Tab. IV. figg. 1, 1 *a–l*, ♀ ; 2, 2 *a*, ♂ .)

*Scytodes longipes*, Lucas, Ann. Soc. Ent. Fr. 1845, p. 71, t. 1. fig. 2[1]; E. Simon, P. Z. S. 1891, p. 567[2].

*Hab.* Mexico[1], Amula, Ojos de Agua, Teapa (*H. H. Smith*); Guatemala (*Sarg*), Cahabon (*Champion*); Panama, David in Chiriqui (*Champion*).—South America[2]; Antilles, St. Vincent[2].

Numerous examples of both sexes of this distinctly-marked species, as identified by M. Simon (*loc. cit.*). have been received from various parts of Central America. This form appears to be abundant in the Antilles and in Tropical South America. According to M. Simon, *S. marmorata*, Tacz., *S. longipes*, Keys., and *S. taczanowskii*, Thor., are all synonymous with *S. longipes*, Lucas.

Walckenaer is of opinion that *S. longipes*, Luc., is the male of *S. omosites*, Walck., and that *S. rufipes*, Luc., the type of which is a female, belongs to the same species. So far as one can judge from the figures, I should say that *S. longipes*, Luc., belonged to *Scytodes*, and *S. rufipes*, Luc., to *Loxosceles*; but I should not like to speak too positively on the point.

### 2. **Scytodes hebraica.** (Tab. IV. figg. 3, 3 *a*, ♂ ; 4, ♂, var. ; 5, 5 *a*, ♀ .)

*Scytodes hebraica*, E. Simon, P. Z. S. 1891, p. 568, t. 42. fig. 14 (♀)[1].

Types, ♂ ♀, in Mus. Brit.

*Hab.* Guatemala, Cahabon (*Champion*), Roknimhá, Choctum, San Antonio (*Sarg*), Yzabal (*G. Lopez*).—Antilles, St. Vincent[1].

The type of *S. hebraica*, from the Island of St. Vincent, is now before me. The specimens from Guatemala doubtless belong to the same species.

### 3. **Scytodes championi,** sp. n. (Tab. IV. figg. 6, 6 *a–d*, ♀ .)

Types, ♂ ♀, in coll. Godman & Salvin.

♂, length 4 millim. ; ♀, length 5·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*); Guatemala (*Sarg*); Panama, Chiriqui (*Champion*).

The chief characters by which this delicate form can be distinguished from the others here recorded, and also from *S. lineatipes*, Tacz., from Venezuela, are given in the table of species, so that there is no need to enumerate them again.

### 4. **Scytodes bajula.**

*Scytodes bajula*, E. Simon, P. Z. S. 1891, p. 569, t. 42. fig. 15 (♂ ♀)[1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 209 (1898)[2].

Types, ♂ ♀, in Mus. Brit.

*Hab.* Mexico, Mazatlan (*Banks*[2]).—Venezuela[1]; Antilles, St. Vincent[1].

Banks records two specimens from Mexico which he doubtfully refers to this species.

### 5. **Scytodes mexicana.**

*Scytodes mexicanus*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 210, t. 13. fig. 1 [1].

*Hab.* Mexico, Mexico city (*Banks* [1]).

### 6. **Scytodes perfecta.**

*Scytodes perfecta*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 210, t. 13. fig. 2 [1].

*Hab.* Mexico (*Banks* [1]).

To judge from Banks's description and figure, this species is quite distinct from *S. longipes*, Luc.

## Subfam. *LOXOSCELINÆ.*

Colulus present between the anterior spinners. Anterior row of eyes very strongly recurved; lateral eyes almost in contact. Tarsal claws two, set on a short onychium. Clypeus oblique, porrected. External side of mandible finely striate. Inner side of femur of palpus set with one short stridulatory spine. Mandibles with a membranous lip on the outer side at the apex. Palpus of female without a claw or claw-like appendage at the apex. Anterior margin of maxillæ strengthened by a chitinous rim, finely serrulate. Carapace compressed, convex, not raised behind. Central thoracic groove very deep and well marked. Body and legs clothed with fine hairs.

The eight or ten species falling into this subfamily are closely allied and widely distributed. The habits of the spiders are somewhat like those of *Scytodes*. They live under stones and bark of trees or in the crevices of the walls of houses or any other convenient cranny. The web is white, flocculent, and adhesive, irregularly spread over the inside of the retreat, the cocoon being attached to one or other side of the domicile. They crouch at the entrance of the den and venture out a little distance at night, rapidly retreating if alarmed.

### LOXOSCELES.

*Loxosceles*, Lowe, Zool. Journ. v. p. 321, tab. supp. 48 (1831).
*Omosites*, Walckenaer, Ann. Soc. Ent. Fr. ii. p. 438 (1833) (sec. E. Simon).
*Scytodes*, Walckenaer, Ins. Apt. i. p. 273 (1837) (ad part. sec. E. Simon).

Type of *Loxosceles*: *Scytodes rufescens*, Duf. *Hab.* Madeira, in domibus.

### 1. **Loxosceles rufipes.** (Tab. IV. figg. 7, 7 *a–j*, ♀; 8, ♂.)

*Scytodes rufipes*, Lucas, in Guérin's Mag. Zool. class. viii. t. 6 (1834) [1].
? *Scytodes omosites*, Walck. Ann. Soc. Ent. Fr. ii. p. 440 [2]; Ins. Apt. i. p. 273 (1837) [3].

*Hab.* Mexico [2]; Guatemala [1] (*Sarg*).—Guiana [3].

There is very little doubt that the specimens of *Loxosceles* taken by Sarg in

Guatemala are identical with this species, of which a figure of the eyes and another of the spider itself are given by Lucas.

## Subfam. *DIGUETIINÆ.*

Colulus between the anterior spinners present. Anterior row of eyes approximately straight. Tarsal claws three, not set on an onychium. Clypeus high, subvertical. External side of mandible finely striate. Inner side of femur of palpus set with four or five short stout stridulatory spines. Mandibles without a membranous lip on the outer side at the apex. Superior margin of the fang-groove with two small teeth, besides the large dentiform cusp common to the family. Palpus of female without a claw or claw-like appendage at the apex. Anterior margin of maxilla strengthened by a chitinous rim, finely and closely serrulate. Carapace compressed, convex longitudinally in the centre behind the eyes. Central thoracic groove deep. Body and legs clothed with fine hairs, and the former with numerous white bacilliform hairs.

### DIGUETIA.

*Diguetia*, E. Simon, Bull. Mus. Paris, 1895, p. 106 ; Hist. Nat. Araign. ed. 2, i. p. 1068.
*Ervig*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 151 (Aug. 1895).
*Segestria*, MacCook, Amer. Spiders, iii. t. 29. figg. 7, 7 *a* (part.).

Type of *Diguetia*, *Segestria canities*, MacCook; of *Ervig*, *E. albolineatus*, O. P.-Cambr.

#### 1. **Diguetia albolineata.** (Tab. IV. figg. 9, 9 *a–h*, ♀ ; 10, 10 *a*, ♂ .)

*Ervig albolineatus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. 151, 221, t. 19. figg. 3, 3 *a–e* (♀), t. 27. figg. 6, 6 *a–e* (♂) [1].

Types, ♂ ♀, in coll. Godman & Salvin.

*Hab.* Mexico, Venta de Zopilote in Guerrero (*H. H. Smith* [1]).

M. Simon considers this species to be identical with *S. canities*, MacCook, and he has kindly forwarded me a female of the latter for examination. One cannot, however, form a definite opinion until more material comes to hand from North America.

#### 2. **Diguetia propinqua.**

*Ervig propinquus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 221, t. 27. figg. 2, 2 *a–e* (♀) [1].

Type, ♀, in coll. Godman & Salvin.

*Hab.* Mexico, Atlixco in Puebla (*Godman* [1]).

## Fam. ZODARIIDÆ.

Eyes eight; spinners six; colulus absent; anterior pair of legs larger and longer than the others. Tarsal claws three, except in *Hermippus*.

The spiders of this family are in very many characters, general as well as special, similar to the Gnaphosidæ, the chief difference lying in the number of the tarsal claws. Two genera alone are represented, so far, in Central America, and, in all probability, one of these, *Cryptothele*, has been recorded from this region through an error.

## STORENA.

*Storena*, Walckenaer, Tabl. Aran. p. 83 (1805).
*Tenedos*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 226 (1897).

Type of *Storena*, *S. cyanea*, Walck.; of *Tenedos*, *T. lautus*, O. P.-Cambr.

### 1. **Storena lauta.**

*Tenedos lautus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 226, t. 29. figg. 6, 6 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin.

*Hab.* GUATEMALA, Antigua (*Stoll* [1]).

### 2. **Storena tinga,** nom. n.

*Storena lauta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 279, t. 31. figg. 10, 10 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin.

*Hab.* MEXICO, Amula in Guerrero (*H. H. Smith* [1]).

## CRYPTOTHELE.

*Cryptothele*, L. Koch, Die Arachn. Austral. i. p. 239 (1871).

Type, *C. verrucosa*, L. Koch: Samoa.

### 1. **Cryptothele cristata.**

*Cryptothele cristata*, E. Simon, Compt. rend. Soc. Ent. Belg. xxviii. (3) p. cccii (1884)[1].

Type, ♂ juv., in coll. E. Simon.

*Hab.* MEXICO [1].

M. Simon (Hist. Nat. Araign. ed. 2, i. p. 422, nota) considers that the locality quoted is probably incorrect.

## Fam. GNAPHOSIDÆ *.

Eyes eight, situated in two transverse, more or less parallel, rows. Lung-sacs two. Tracheal stigmata convergent, situated just before the anterior pair of spinners. Maxillæ straight or incurved, deeply impressed obliquely across the middle. Tarsal claws two. Tarsi and protarsi i. and ii., apex of protarsi iii., and tarsi iii. and iv. scopulate beneath. Spinners six; anterior pair the longest, widely separate at the base. Colulus absent, represented only by a few closely grouped convergent hairs.

This family is, so far as our present knowledge extends, by no means well represented in the fauna of Central America; seven genera, including eleven species, comprising the whole number. The members of the family may be distinguished from those groups of the family Clubionidæ to which they bear a close general resemblance by the more widely separated anterior pair of spinners, the deeply impressed maxillæ, and

* The family name Drassidæ disappears with the lapse of the generic term *Drassus* as a synonym of *Gnaphosa*. The name Gnaphosidæ has been substituted by R. I. Pocock [Ann. & Mag. Nat. Hist. (7) ii. p. 219, nota (Sept. 1898).]

the absence of regular pairs of spines beneath the tibiæ and protarsi of the first and second pairs of legs.

The seven genera recorded from Central America may be distinguished by the following characters:—

AA. Posterior row of eyes strongly procurved . . . . . ECHEMUS, E. Sim.
BB. Posterior row of eyes straight, or only slightly procurved.
A. Lower margin of fang-groove without a carina, either toothed or plain.
i. Lower margin of fang-groove armed with two teeth . . . . . DRASSODES, Westr.
ii. Lower margin of fang-groove either plain or armed with a single minute tooth.
*a*. Maxillæ almost straight, enlarged at the apex . . . . . BONNA, O. P.-Cambr.
*b*. Maxillæ strongly curved.
1. Posterior row of eyes not, or scarcely, wider than the anterior row.
*a**. Posterior row of eyes widely distant from anterior row. Central posteriors two and a half diameters apart . . CESONIA, E. Sim.
*b**. Posterior row of eyes close to the anterior row. Central posteriors scarcely one diameter apart . . . . . PROSTHESIMA, L. Koch.
2. Posterior row of eyes much wider than anterior row. (Anterior centrals much larger than the laterals.) . . . . SCOTOPHÆUS, E. Sim.
B. Lower margin of fang-groove with a stout chitinous carina . . . GNAPHOSA, Latr.

## GNAPHOSA.

*Gnaphosa*, Latreille, Nouv. Dict. d'Hist. Nat. xxiv. p. 134 (1804).
*Drassus*, Walckenaer, Tabl. Aran. p. 45 (1805).

Type *G. lucifuga* (Walck.).

This genus, resembling in general appearance *Prosthesima*, is found all through the temperate regions and those bordering on the tropics, equally in Europe, Asia, Africa, and America. Only two species, one of which is remarkable for the long spiral spine attached to the palpal organs, have been observed in Central America, though numerous others doubtless occur there.

### 1. **Gnaphosa spiralis**, sp. n. (Tab. IV. figg. 18, 18 *a–e*, ♂.)

Type, ♂, in coll. Godman & Salvin.

♂. Total length 3 millim.

Carapace and legs bright orange-yellow, the former finely margined with black; abdomen clothed with mouse-grey pubescence, having in front a red-brown coriaceous area, its anterior margin fringed with long black hairs. For the figure of the palpal organs, eyes, &c., see Tab. IV.

*Hab.* GUATEMALA (*Sarg*).

A single adult male of this remarkable species has been received from Mr. Sarg.

### 2. **Gnaphosa decepta.**

*Gnaphosa decepta*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 221, t. 13. fig. 14 (1898) [1].

♀. Total length 7 millim.

*Hab.* Mexico, Tepic (*Banks*[1]).

## BONNA.

*Bonna*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 249 (June 1898).

Type *B. fidelis*, O. P.-Cambr. ♀. Immature.

The two rows of eyes wide apart, as in *Cesonia*, but less so, while the eyes are larger; posterior row procurved, eyes equal, centrals one and a half diameters apart, two diameters from the laterals; anterior row procurved, lateral eyes slightly larger, centrals two diameters apart, one from the laterals; central quadrangle longer than broad, slightly narrower behind, laterals two and a half diameters apart; laterals of both rows one and a half diameters apart. Clypeus, opposite the lateral eyes, equal to one diameter of an anterior lateral eye.

Inferior margin of fang-groove without teeth; superior margin with two small serrations. Maxillæ long, quite straight along the inner margin, emarginate on the outer side, only deeply impressed across the middle, broadly rounded at the apex. Sternum oval, longer than broad. Legs similar to those of *Cesonia*. Anterior tarsi and protarsi and posterior tarsi scopulate. Tarsal claws two, claw-tuft present. Anterior protarsi with a pair of stout spines near the base beneath; anterior tibiæ with two stout spines beneath, one towards the middle, the other at the apex. Posterior tibiæ spinose beneath, protarsi numerously spinose above and below. Tibia iii. with a stout spine also towards the base above.

### 1. **Bonna fidelis.**

*Bonna fidelis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 250, t. 33. figg. 1, 1 *a–e* (♀) [1].

Type, ♀, in coll. Godman & Salvin.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

## CESONIA.

*Herpyllus*, Hentz, Bost. Journ. Nat. Hist. v. p. 454 (1847) (part.).
*Pœcilochroa*, Emerton, Trans. Conn. Acad. viii. p. 174 (1889) (part.).
*Cesonia*, E. Simon, Hist. Nat. Araign. ed. 2, i. p. 375 (1893).
*Helvidius*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 220 (1896).

Type *C. bilineata* (Hentz).

Rows of eyes widely separate; posterior row straight, scarcely broader than the anterior row, eyes subequal, centrals further from each other than from the laterals; anterior row (seen from above) procurved, (seen from in front) straight, almost equal, less than one diameter apart, equidistant. Clypeus as high as one and a half diameters of an anterior central eye. Maxillæ impressed in the centre; labium nearly twice as long as broad. Lower margin of fang-groove without teeth; upper margin with three short cusps.

### 1. **Cesonia lugubris.** (Tab. IV. fig. 17, ♀.)

*Helvidius lugubris*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 221, t. 27. figg. 1, 1 *a–e* (♀) [1].
*Cesonia lugubris*, O. P.-Cambr. loc. cit. p. 281 [2].

Type, ♀, in coll. Godman & Salvin.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

Fourteen or fifteen examples of the female sex of this handsome species were taken by Mr. Smith, but no males.

The locality was not appended to the original description of the species [1].

### 2. Cesonia fugax.

*Cesonia fugax*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 281, t. 32. figg. 5, 5 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin.

*Hab.* Mexico, Amula (*H. H. Smith* [1]).

### 3. Cesonia mexicana.

*Cesonia mexicana*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 221, t. 13. fig. 24 (1898)[1].

♂. Length 6 millim.; ♀, 7 millim.

*Hab.* Mexico, Tepic, Orizaba (*Banks* [1]).

This species is very likely identical with *C. lugubris*, O. P.-Cambr.; and if so, the latter name has priority.

## PROSTHESIMA.

*Melanophora*, C. Koch, in Panzer's Deutschl. Insecten, tabb. 20, 21 (Dec. 1833) (nomen præocc.)*.
*Prosthesima*, L. Koch, Abhandl. Ges. Nürnb. vi. p. 139 (1872).

Type *P. subterranea* (C. Koch).

The two species of this genus known to me may be distinguished as follows:—

A. Carapace and legs orange-yellow; abdomen ochreous-yellow . . *lutea*, sp. n.
B. Carapace, legs, and abdomen deep brown or sooty-black . . . . *mœsta*, O. P.-Cambr.

### 1. Prosthesima lutea, sp. n. (Tab. IV. figg. 16, 16 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7·5 millim.

♀. Carapace, sternum, and legs pale orange-yellow. Abdomen dull yellow-ochre, clothed with fine dark hairs. For the figure of the vulva, see Tab. IV. fig. 16 *a*.

*Hab.* Guatemala (*Sarg*).

A single adult female only has been received.

### 2. Prosthesima mœsta. (Tab. IV. figg. 15, 15 *a*, ♂; 15 *b*, ♀.)

*Prosthesima mœsta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 245, t. 33. figg. 2, 2 *a–f* (♂)[1].

Type ♂, cotype ♀, in coll. Godman & Salvin.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith* [1]).

* The name *Melanophora* given by C. Koch to this group in 1833 had already been used by Meigen for a genus of Diptera ['Magazin für Insektenkunde,' von Karl Illiger. Braunschweig, ii. p. 279 (1803)].

### 3. Prosthesima mexicana.

*Prosthesima mexicana*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 217, t. 13. fig. 18 (♀).

♀. Length 6–8 millim.

*Hab.* Mexico, Mexico city and Orizaba (*Banks* [1]).

### 4. Prosthesima fidelis.

*Prosthesima fidelis*, Banks, loc. cit. p. 219, t. 13. fig. 19 (♀)[1].

♀. Length 3–6 millim.

*Hab.* Mexico, Minatitlan (*Banks* [1]).

### 5. Prosthesima indecisa.

*Prosthesima indecisa*, Banks, loc. cit. p. 220, t. 13. fig. 20 (♂)[1].

♂. Length 7 millim.

*Hab.* Mexico, San Miguel de Horcasitas (*Banks* [1]).

## SCOTOPHÆUS.

*Scotophæus*, E. Simon, Hist. Nat. Araign. éd. 2, i. p. 371 (1893).

Type *S. quadripunctatus* (Linn.).

This genus is abundantly represented in Europe, and in England by the single species *S. blackwalli* (Thor.). There are two species from Central America, both new, which may be distinguished, in addition to the characters furnished by the vulva, by the following:—

A. Size much larger: length 16 millim. Central posterior eyes two diameters apart, at least four diameters from the laterals. Abdomen unicolorous brown above . . . . . *guatemalensis*, sp. n.

B. Size much smaller: length 8·5 millim. Central posterior eyes one and a half diameters apart, two diameters from the laterals. Abdomen black, with central dorsal pale band, broken up transversely towards the spinners . . . . . *pictus*, sp. n.

### 1. Scotophæus guatemalensis, sp. n. (Tab. V. fig. 1, ♀.)

Type, ♀, in coll. Godman & Salvin.

♀. Total length 16 millim.

Legs, carapace, and sternum mahogany-brown, clothed with a dense grey pubescence and fine grey hairs. Abdomen clothed with dense ochre-grey pubescence. Tibiæ i. and ii. with 2—2—1 spines beneath, the first pair being apical. Protarsus i. and ii. with a pair of spines at the base. Vulva very simple, consisting of a short tongue-like prominence, followed by a deep groove, dilate at first, narrowing in the centre, again dilate at the genital rima, which divides the vulva into two rounded chitinous lobes. (Tab. V. fig. 1.)

*Hab.* Guatemala (*Sarg*).

A single adult female.

### 2. **Scotophæus pictus,** sp. n. (Tab. IV. fig. 14, ♀.)

Type, ♀, in coll. Godman & Salvin.

♀. Total length 8·5 millim.

Carapace, sternum, and mouth-parts dark mahogany-brown, legs paler. Abdomen sooty-black, with a pale, broad, central band, more or less broken up into transverse bars towards the spinners. Spinners pale yellow.

Posterior row of eyes almost straight, eyes nearly equal, almost equidistant, centrals slightly nearer, one and a half diameters apart, two diameters from laterals; anterior row slightly procurved, centrals larger than laterals, almost contiguous with each other and with the laterals; posterior row wider than the anterior. Tarsi and protarsi i. and ii. with a thick black scopula beneath; protarsi with a pair of spines at the base. Tibiæ i. and ii. with a single row of three spines beneath.

The vulva consists of a small triangular concavity, having a central chitinous tongue. (See Tab. IV. fig. 14.)

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

## ECHEMUS.

*Echemus*, E. Simon, Arachn. Fr. iv. p. 99 (1878).

Type *E. ambiguus*, E. Sim. Basses-Alpes.

For generic characters, see table of genera.

### 1. **Echemus pedestris.**

*Echemus pedestris*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 273, t. 32. figg. 13, 13 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith* [1]).

### 2. **Echemus ochraceus,** sp. n. (Tab. IV. figg. 11, 11 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin.

Total length 6 millim.

Carapace, legs, sternum, and mouth-parts pale orange-yellow. Abdomen paler, with brown hairs on the dorsal surface. Ventral area pale, with a narrow central band of brown hairs.

Tibiæ i. and ii. with two spines in a row on the anterior margin beneath; protarsus i. with one spine, ii. with a pair of spines at the base beneath.

Tibia of palpus with a longer sharp spur on the outer side directed forwards, and another smaller cusp above, inclined towards the inner side. Bulb with a long stout spine on the inner side, its apex black, sharp, passing the distal margin of the bulb, and curving slightly outwards.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

A single adult male.

## DRASSODES.

*Drassodes*, Westring, Araneæ Suecicæ, p. 360 (1862).

Type *D. lapidosus* (Walck.).

Two species only of this genus are represented in the Central-American collections before me, though others have been described by Mr. N. Banks from Mexico. The name *Drassus*, so long associated with the forms now referred to *Drassodes*, has become

a synonym of *Gnaphosa*—since the type of *Drassus* is *D. lucifugus* (Walck.), a species which now falls under the genus *Gnaphosa*.

The two species known to me may be distinguished by the following characters:—

A. Tibiæ iii. and iv. without dorsal spines. Vulva large, with a stout chitinous horseshoe, its open side directed forwards . . . . . *ferrum-equinum*, sp. n.

B. Tibiæ iii. and iv. with dorsal spines. Vulva small, hemispherical, with a tongue-like process, very narrow at its base, suddenly broadening into a transverse oblong piece behind . . . . . *centralis*, sp. n.

### 1. **Drassodes ferrum-equinum**, sp. n. (Tab. IV. figg. 12, 12 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin.

♀. Total length 7·5 millim.

Carapace mahogany-brown, suffused with dark sooty-brown over the ocular area, and lightly reticulated with the same colour over the sides. Sternum deep mahogany-brown, suffused with darker brown over the margins. Legs mahogany-orange-brown. Abdomen clothed with short madder-brown pubescence.

Posterior row of eyes slightly procurved, eyes subequal, centrals almost in contact, just under one transverse diameter apart; anterior row slightly procurved, eyes subequal, almost in contact; laterals scarcely one diameter apart. Clypeus as high as one diameter of an anterior central eye. Tibiæ iii. and iv. without dorsal spines. Vulva horseshoe-shaped. (See Tab. IV. fig. 12.)

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

This small species belongs to that group of the genus of which *D. troglodytes*, C. Koch, may be regarded as the type, characterized by the more closely grouped eyes and the absence of spines on the upperside of tibiæ iii. and iv.

### 2. **Drassodes centralis**, sp. n. (Tab. IV. fig. 13, ♀.)

Type, ♀, in coll. Godman & Salvin.

♀. Total length 9 millim.

Carapace, legs, and sternum pale yellow-brown, suffused over the caput with darker mahogany-brown. Mandibles and margins of sternum also darker.

Central posterior eyes distinctly larger than the laterals, less than half a diameter apart, two diameters from the laterals; posterior row slightly procurved; central anteriors a full diameter apart, less than half a diameter from the laterals; anterior row slightly procurved; laterals of both rows one diameter apart.

Clypeus (in centre) one and a half diameters from the central anterior eyes. Upper margin of fang-groove with three teeth, lower margin with two teeth. Protarsi i. and ii. with a single spine beneath close to the base. Tibiæ i. and ii. with a single spine about the middle beneath. Tibiæ and protarsi iii. and iv. numerously spinose. Tibiæ iii. and iv. with two dorsal spines above, one near the base, the other towards the apex. Tarsi and protarsi i. and ii. scopulate beneath; tarsi iii. and iv. alone scopulate.

Vulva transverse triangular, with curved sides, forming a black-margined hemicircle; from its anterior margin springs a tongue-like process, very narrow at the base, suddenly enlarging to form a broad, transverse, oblong chitinous piece, margined with black, its posterior side slightly protuberant in the middle; close to its anterior angles lies a smooth round chitinous spot.

*Hab.* Mexico, Puebla (*Godman*).

This species belongs to the group of which the type of the genus, *D. lapidosus*, is a typical representative.

### 3. Drassodes singularis.

*Drassus singularis*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 215, t. 13. fig. 8 [1].

♀. Total length 10 millim.

*Hab.* Mexico, Orizaba [1].

I have not seen a specimen of this or the following species.

### 4. Drassodes orizaba.

*Drassus orizaba*, Banks, loc. cit. p. 215, t. 13. fig. 11 [1].

♀. Total length 9 millim.

*Hab.* Mexico, Orizaba [1].

### 5. Drassodes perditus.

*Drassodes perditus*, Banks, loc. cit. p. 216, t. 13. fig. 7 [1].

♂. Total length 10 millim.; ♀, length 12 millim.

*Hab.* Lower California, Agua Caliente [1].—Mexico, Mexico city [1].

If Mr. Banks wished to separate the above three species under two generic names, the name *Drassus*, at any rate, is no longer available for either of them.

### 6. Drassodes pallidipalpis.

*Drassus pallidipalpis*, Bilimek, Verh. zool.-bot. Ges. Wien, xvii. p. 906 (1867) [1].

*Hab.* Mexico, Cave of Cacahuamilpa [1].

## Fam. CLUBIONIDÆ.

Eyes eight, situated in two transverse, more or less parallel rows. Lung-sacs two. Tracheal stigmata convergent, situated just before the anterior pair of spinners. Maxillæ long, straight or sometimes somewhat curved, convex in the middle. Tarsal claws two. Claw-tuft present, consisting of a dense cluster of scopuliform hairs. Tarsi and protarsi i. and ii., apex of protarsi iii. and iv., and tarsi iii. and iv. scopulate beneath. Spinners six; anterior pair usually shortest, situated close together at the base. Colulus absent, but often represented by a small cluster of hairs. Legs normal, not laterigrade.

The various subfamilies into which the representatives of this family may conveniently be divided can be recognized as follows:—

A. Anterior tibiæ and protarsi without any definite double series of long movable spines.
  *a.* Terminal segment of posterior spinners very short, compressed hemispherical.
    * Apex of maxillæ rounded . . . . . Corinninæ.
    ** Apex of maxillæ subtruncate . . . . . Micariinæ.
  *b.* Terminal segment of posterior spinners longer, more conical, sometimes nearly as long as the basal segment . . . . . Clubioninæ.
B. Anterior tibiæ and protarsi with a definite double series of long movable spines on the underside . . . . . Liocraninæ.

## Subfam. *CORINNINÆ.*

Spinners with a very short conico-convex terminal segment only. The apex of the maxillæ furnished on the inner side with a tuft of incurving hairs, and beneath this a thick row of short, stiff, densely clustered bristles. Lateral eyes often (*Diestus* and some *Corinnæ*) set on tubercles. Mandibles robust, often gibbous above, sometimes immensely developed in the male sex (*Megalostrata*). Sternum with a reflexed margin in front, sometimes all round. Central spinners cylindrical (*Corinna*), or longitudinally compressed (*Trachelas*). Carapace, mandibles, and sometimes the sternum and legs, rugulose, granulose, or rugulo-granuloso-impunctate. Legs more or less spinose (*Corinna* and *Megalostrata*), or entirely without spines (most *Trachelas*). Tibiæ and protarsi, and often the tarsi of i. and ii., with more or less numerous cuspules beneath. Tibiæ i. and ii. (except in *Trachelas*) with three, four, or five pairs of spines beneath; protarsi i. and ii. with two pairs, and often with a single apical spine. Tarsi, and apex at least of protarsi, more or less scopulate. Claw-tuft consisting of a dense cluster of scopuliform hairs.

### Genera.

I. Maxillæ more or less rounded, not dilate at the apex nor concave on the outer side. Posterior row of eyes procurved. Central pair of spinners more or less cylindrical. Legs more or less spinose.
  A. Eyes of the posterior row equidistant, or centrals further from each other than from the laterals. Mandibles of the male with 3 large teeth only on the lower margin . . . . . MEGALOSTRATA, Karsch.
  B. Eyes of the posterior row not equidistant, centrals further from the laterals than from each other. Mandibles of the male with 4–5 teeth on the lower margin . . . . . CORINNA, C. Koch.

II. Maxillæ long, straight, concave on the outer side, dilate at the apex. Posterior row of eyes recurved. Central pair of spinners longitudinally compressed. Legs almost entirely devoid of spines . . TRACHELAS, L. Koch.

## MEGALOSTRATA.

*Megalostrata*, Karsch, Zeitschr. für Naturw. liii. p. 377 (1880).
*Delozeugma*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 105 (1893).

Type *M. venifica*, Karsch, ♂. Costa Rica.

The chief characteristic of this genus lies in the enormous size of the mandibles in the male sex. The lower margin of the fang-groove has three teeth, and the fang itself is furnished sometimes with a tooth on the underside near the base. Otherwise there is little difference between *Megalostrata* and *Corinna*. The lower margin of the fang-groove in the immature female has five teeth.

The four species may be recognized by the following characters:—

### *Males.*

A. Fang of mandible with a longer or shorter, stout conical tooth near the base beneath. Tibial spur of the palpus simple, rounded, not bifid.
  1. The two teeth on the base of the mandible beneath situated nearer together, by less than (about half) the length of the anterior

tooth. Tarsus of pedipalp not so much longer than broad (two and a half times).

*a*. Tibial spur of pedipalp directed inwards . . . . . *venifica*, Karsch.

*b*. Tibial spur of pedipalp directed outwards . . . . . *mordicans*, O. P.-Cambr.

2. The two teeth on the base of the mandible beneath situated far apart, by more than the length of the anterior tooth. Tarsus of pedipalp much longer (three and a half times) than broad . . *formidabilis*, O. P.-Cambr.

B. Fang of mandible without any tooth near the base beneath. Tibial spur of palpus deeply bifid . . . . . *depicta*, O. P.-Cambr.

### 1. Megalostrata venifica.

*Megalostrata venifica*, Karsch, Zeitschr. für Naturw. liii. p. 378, t. 12. figg. 5, 5 *a*, *b* (♂)[1].

Type, ♂, in Mus. Berol.

*Hab.* Costa Rica (*Hoffmann*[1]).

### 2. Megalostrata mordicans.

*Delozeugma mordicans*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 225, t. 28. figg. 1, 1 *a–g* (♂)[1].

Type, ♂, in coll. Godman & Salvin.

*Hab.* Guatemala, Tactic in Vera Paz[1] (*Sarg*), Cahabon[1] (*Champion*).

### 3. Megalostrata formidabilis.

*Delozeugma formidabile*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 106, t. 14. figg. 5, 5 *a–h* (♂)[1].

Type, ♂, in coll. Godman & Salvin.

*Hab.* Mexico, Guajuanato (*A. Dugès*[1]); Costa Rica, San José (*Tristan*).

### 4. Megalostrata depicta.

*Delozeugma depictum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. 145, 183, t. 19. figg. 1, 1 *a–d* (♂)[1].

Type, ♂, in coll. Godman & Salvin.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

## CORINNA.

*Corinna*, C. Koch, Die Arachniden, ix. p. 17 (1842) *.

*Hypsinotus*, L. Koch, Keyserling, Marx, etc. (ad part.).

Type *C. rubripes*, C. Koch. Brazil.

Legs more or less spinose. Lower margin of the fang-groove of the mandibles with from 4–5 teeth. Posterior row of eyes scarcely wider than the anterior row, procurved. Maxillæ usually strongly rounded, but

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* *Temecula*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 170, referred by M. E. Simon to *Corinna* (Hist. Nat. Araign. 2nd edit. ii. pp. 197, 199), is a three-clawed spider, and does not fall into the family Clubionidæ.

often more nearly straight, and slightly dilate at the apex. Sternum not produced between coxæ iii. and iv. Central pair of spinners more or less cylindrical. Mandibles stout, often gibbous at the base above. Lateral eyes often set on a small tubercle.

This genus is well represented in the Central-American fauna. The species known to me can be divided into two distinct groups, which may some day receive names and be ranked as genera. The chief difference lies in the form of the maxilla, almost straight in *C. bulbosa* and *C. bulbula*, rounded in the other species.

We have not received specimens of any of the six species previously described (*C. cinnamia*, E. Sim., excepted) from within our limits, and I have not attempted to include them in the following table:—

*Males.*

A. Eyes, as a group, more widely separate, anteriors one diameter of the centrals apart. Maxillæ more than twice as long as the labium, almost straight, dilate at the apex, concave at the middle of the outer side. Carapace broad in front; cephalic area abruptly inclined behind.

1. Protarsus i. with 2—2 spines beneath and a single central apical spine. Abdomen with a dorsal and ventral scutum. Lower margin of fang-groove with 6 teeth . . . . . *bulbula*, sp. n.

2. Protarsus i. with 2—2 spines beneath, but no central apical spine. Abdomen without dorsal or ventral scutum. Lower margin of fang-groove with 4 teeth . . . . . *bulbosa*, sp. n.

B. Eyes, as a group, much closer together, anteriors seldom over half a diameter of the centrals apart. Maxillæ shorter, half as long again as labium, curved, not dilate, convex on the outer side. Carapace narrowed in front; cephalic area gradually inclined behind. (Protarsi i. and ii. without any apical, central spine.)

*a*. Legs not granulose, the coxæ alone slightly so.

* Abdomen without dorsal scutum. Bulb with two spines at its apex and a racket-shaped membranous process. (Lower margin of fang-groove with 5 teeth.)

1. Clypeus higher, two and a quarter diameters of an anterior central eye. Unca on tibial spur slender and strongly curved. Tibial spur minutely bifid at the apex. Bulb with two broad spines and a membranous process, the former separate at the base . . . . . *falcula*, sp. n.

2. Clypeus lower, scarcely two diameters of an anterior central eye. Unca on tibial spur long, very broad, compressed basally, shortly uncate at the apex. Tibial spur trifid. Bulb with a pair of stout sharp spines, coalescent at the base, curving outwards, and a membranous process . . . . . *uncata*, sp. n.

** Abdomen with dorsal scutum. Bulb with a large curving scimitar-shaped flat broad spine springing from the inner side at its apex, its point directed outwards, coinciding with the apex of an S-shaped membranous process. (Lower margin of fang-groove with 5 teeth.) . *mucronata*, sp. n.

*b*. Legs granulose.

i. Central and lateral anterior eyes almost in contact.

*aa*. Lower margin of fang-groove with 5 teeth. Clypeus low, one and a quarter diameters of an anterior central eye. Bulb with a single stout strongly curved spine at its apex, directed outwards, its point lying on a racket-shaped membrane . . . . . *nervosa*, sp. n.

*bb*. Lower margin of fang-groove with 6 teeth. Clypeus higher, two and a quarter diameters of an anterior central eye. Bulb with two separate spines, or spurs, and also a racket-shaped membrane. *bicuspis*, sp. n.

ii. Central and lateral anterior eyes wider apart, separated by nearly half a diameter . . . . . *paradoxa*, sp. n.

## *Females* †.

A. Lower margin of fang-groove with 5–7 teeth.

I. Sternum and legs (or at least the anterior side of the femora) finely and closely granulose.

*a*. Lower margin of fang-groove with 6 or 7 teeth.

* Abdomen clay-yellow with brown pattern. Body and legs clothed with fine long semi-erect hairs . . . . . *retusa*, sp. n.

** Abdomen unicolorous olive-brown. Body and legs clothed with very short silky pubescence.

*aa*. Clypeus higher, equal to two diameters of an anterior central eye. Anterior side of the femora alone granulose. Vulva consisting of two concavities, with a broad longitudinal bridge between . . . . . *nava*, sp. n.

*bb*. Clypeus lower, equal to one and a half diameters of an anterior central eye. Legs entirely more or less granulose. Vulva consisting of a large simple concavity with no longitudinal bridge down its centre . . . . . *luctuosa*, sp. n.

*b*. Lower margin of fang-groove with 5 teeth . . . . . *saga*, sp. n.

II. Sternum (except sometimes a few scattered granulations anteriorly) and legs not granulose. Fang-groove with 5 teeth.

* Clypeus higher, just over one diameter of an anterior central eye.

*a*. Vulva consisting of two oval concavities, divided by a narrow longitudinal bridge . . . . . *præceps*, sp. n.

*b*. Vulva consisting of a single deep, almost circular cavity with a small deep fovea between its posterior margin and the genital rima . *cinnamia*, E. Sim.

** Clypeus lower, less than one diameter of an anterior central eye. Vulva without any concavity or concavities, presenting only a dark wedge-shaped central longitudinal area, limited anteriorly by a distinct semicircular rim . . . . . *mucronata*.

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† It is not probable that such characters as the height of the clypeus, relative position of the eyes, or the granulation of the legs and sternum will be of much use when the number of known forms increases. The form of the vulva will then alone be useful.

B. Lower margin of fang-groove with 4 teeth.

*a*. Eyes more closely grouped. Anterior eyes equidistant. Anterior row strongly procurved. No small central apical protarsal spine . . . . *bulbosa*.

*b*. Eyes widely separate. Central anteriors nearer together than to the laterals. Anterior row slightly procurved or straight. Protarsus i. with a single small central apical spine beneath.

(Carapace precipitous behind. Labium rather over one-third the length of the maxillæ. Maxillæ longer, concave (or in species 4 and 5 not so concave) on the outer side. Trochanter of pedipalp attached distinctly below the middle of the maxilla.)

1. Anterior row of eyes slightly procurved. Maxillæ longer and straighter. Legs variegated, black and orange. Abdomen with a pair of pale dorsal spots . . . . . *variegata*, sp. n.
2. Anterior row of eyes straight. Maxillæ shorter and rounded. Legs orange-brown. Abdomen unicolorous, with a small semilunar white spot above the spinners . . . . . *semiluna*, sp. n.

Note.—The following characters apply to all the species falling under A in the above table; some, however, in the case of the eyes and the mouth-parts, apply also to B *a* and B *b* 2:—Eyes closely grouped; anterior row more or less procurved; eyes equidistant, or almost so. Labium not less than half the length of the maxillæ. Maxillæ short, broad, not straight, but curving inwards, convex on the outer side, not dilate at the apex. Trochanter of pedipalp attached more nearly at the middle of the maxilla on the outer side. No central apical protarsal spine. Carapace gradually inclined to its base, not precipitous behind the cephalic region, slightly convex at the central fovea, not concave, narrowed in front. Sternum scarcely longer than broad, almost circular. Lower margin of fang-groove with from 5–7 teeth.

### 1. Corinna nigricans.

*Corinna nigricans*, C. Koch, Die Arachniden, ix. p. 19, fig. 703[1].

Type, ♂, in Mus. Berol. Total length 8 millim.

*Hab.* Mexico[1].

### 2. Corinna raptor.

*Hypsinotus raptor*, L. Koch, Die Drassiden, p. 274, t. 11. figg. 174, 175 (1866)[1].

Type, ♂, in coll. Dr. L. Koch, Nürnberg. Length of carapace 6 millim.

*Hab.* Mexico[1].

This species, judging from Dr. Koch's figures and description, is quite different from any of those described below.

### 3. Corinna spinifer.

*Hypsinotus spinifer*, Keyserling, Verh. zool.-bot. Ges. Wien, xxxvii. p. 449, t. 6. fig. 20 (1887)[1].

Type, ♀, in coll. Mus. Cambridge (Mass.).

*Hab.* Nicaragua[1].

The vulva in this species consists of a convexity with a central deep concavity, according to Keyserling's figure.

### 4. **Corinna cinnamia.** (Tab. V. fig. 19, ♀, vulva.)

*Creugas cinnamius*, E. Simon, Ann. Soc. Ent. Fr. 1888, p. 210 (♀)[1].

Type, ♀, in coll. E. Simon.

Total length 10·6 millim.

*Hab.* Mexico[1].

### 5. **Corinna bulbula,** sp. n. (Tab. V. figg. 2, 2 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin.

Total length 10·5 millim. Carap. 4·5 × 3. Pat.+tib. i. 4·75; iii. 3·5; iv. 4·75.

♂. Carapace and mandibles dark mahogany-brown, impunctate-granulose; sternum and maxillæ slightly paler, granulose. Legs dull orange-yellow, finely granulose. Abdomen dark brown, without a dorsal scutum, and with a central very indistinct pale spot on each side.

Eyes: as a group occupying nearly the whole width of the caput. Posterior row procurved, eyes subequal, two diameters (almost) apart, two and a half diameters from laterals. Anterior row procurved; centrals larger, scarcely one diameter apart, one full diameter from laterals. Laterals of both rows half a diameter apart. Central quadrangle much broader than long, centrals of both rows half a diameter of an anterior central apart. Carapace with caput distinctly raised, slightly bilobate behind, central fovea deep. Lower fang-groove with five subequal teeth.

Legs: protarsi i. and ii. with two pairs of spines beneath, and a single central apical spine; tibia i. with four pairs (and a small apical pair) of spines beneath; tibia ii. with a single outer row of four spines.

Palpus: tibia twice as long as broad, with two spurs on the outer side; the upper spur short, broad, dilate, terminating at the apex in a short blunt point; the lower spur shorter, narrower, curving upwards towards the upper spur. Bulb globular, with the spiraloid spermatic duct very distinct, bearing on the outer side a stout process, geniculate and narrowed in the middle, then dilate and ending in a sharp black point at the apex. From the inner apical margin of the bulb springs a long sinuous spine, its apex lying closely in contact with the apex of the external process.

The form of the bulb itself is conspicuously different from that of others of the genus here recorded, resembling *C. bulbosa* alone in its character.

*Hab.* Panama, Bugaba (*Champion*).

### 6. **Corinna bulbosa,** sp. n. (Tab. V. figg. 3, 3 *a*, *b*, ♂; 4, 4 *a*, ♀.)

Type ♂, cotype ♀, in coll. Godman & Salvin.

♂. Total length 7 millim. Carap. 3·5 × 2·25. (Legs iii. and iv. wanting.) Sternum 1·5 × 1·25.

♂. Carapace and mandibles mahogany-brown; rugulose and granulose-impunctate. Sternum and legs mahogany-brown (coxæ and base of femora paler) and (except coxæ of legs) closely granulose. Abdomen clay-yellow, with a dark shoulder-spot on each side and a broad transverse black bar just behind the middle, often connected with the shoulder-spots (which sometimes coalesce in the centre) by a narrow longitudinal dark line, which has short lateral branches on each side. Following the transverse bar are three or four transverse ⌒-shaped indistinct brown bars and a dark blotch immediately above the spinners, which are themselves encircled by a black line.

Ventral area pale clay-yellow.

Carapace precipitous behind, gibbous in the cephalic region, but less than in *C. variegata*, and not so broad in front. Eyes less widely separate. Posterior row procurved; eyes equal, equidistant, almost two diameters apart. Anterior row strongly procurved; centrals larger, equidistant, one diameter of the centrals apart. Clypeus just over one diameter of an anterior central eye.

Maxillæ long, more than twice the length of the labium, straight, slightly concave on the outer side and dilate

at the apex (but less so than in *C. variegata*). Sternum not much longer than broad. Lower margin of fang-groove with four teeth.

Legs: tibia i. with six pairs of spines, or six on one side and five on the other; tibia ii. with five spines on the outer and three on the inner side, the apical pair very small. Protarsi i. and ii. with two pairs of spines, but no central apical spine.

Palpus: tibia about twice as long as broad, with a short blunt spur at its apex above, really a development of the segment itself, bearing on the outer side beneath a small, sinuous, wedge-shaped, sharply pointed spur, its apex directed upwards, closely adjacent to the base of the tarsus. Bulb globular, with the spiraloid spermatic duct very distinct; bearing at its apex on the outer side a stout very strongly geniculate process, of which a stout spur-like dentigerous angle is directed outwards, the rest of the process slightly concave, losing itself within the apical portion of the tarsus. From the inner side at the apex of the bulb springs a stout black spine, dilate at the base, filiform towards the apex, which, curving across beneath the anterior tarsal margin, lies in the concavity of the former process, close to its outer margin.

♀. Total length 10 millim. Carap. 3·75 × 3. Pat.+tib. i. 4; iii. 3; iv. 4·5.

Colour and structure similar to that of the male.

Vulva consisting of a prominent oval convexity, with a fairly small transverse angular-elliptical orifice, having a smaller, deep, dark cavity within, close to the posterior margin. The anterior rim of the larger orifice is the highest point in the convexity and the posterior margin of the vulva is broad and rather deeply concave in the middle, shelving off into the orifice.

*Hab.* MEXICO, Teapa (*H. H. Smith*); GUATEMALA (*Sarg*).

### 7. **Corinna falcula,** sp. n. (Tab. V. figg. 5, 5 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin.

Total length, incl. mandible, 16 millim. Carap. 6·5 × 4·8. Pat.+tib. i. 6·75; iii. 5; iv. 6·75. Prot. iv. 5.

♂. Carapace deep black, finely granulose-impunctate; mandibles deep black, coarsely granulose-impunctate. Sternum and coxæ of legs deep black, granulose-impunctate. Legs dull orange-brown. Femur and patella of palp orange-brown, tibia and tarsus deep black.

Eyes: posterior row procurved, eyes subequal, centrals two diameters apart, two and a half from laterals. Anterior row slightly procurved; centrals distinctly, though slightly, larger, less than one diameter apart, one diameter from laterals. Central quadrangle as long as broad. Laterals of both rows half a diameter apart, set on a common tubercle. Clypeus equal to two and a quarter diameters of an anterior central eye. Lower margin of fang-groove with five subequal teeth.

Palpus: tibia, including lateral spurs, very broad; viewed in profile, almost twice broader than long. Tibial spur broad, blunt, concave beneath, with a conspicuous longitudinal carina anteriorly, curved and slightly notched a little behind the apex, broadly concave in front, bearing on the anterior margin, on the outer side, a short curved hook, its point directed upwards and forwards. Tarsus produced on the outer side at the base, bigibbous. Bulb with two short spurs, separate at the base, the outer posterior spur being broader, its outer side in contact with a rounded racket-shaped diaphanous membrane.

Legs: protarsi i. and ii. with two pairs of spines beneath; tibia i. with six, ii. with five pairs.

*Hab.* MEXICO, Omilteme in Guerrero (*H. H. Smith*).

### 8. **Corinna uncata,** sp. n. (Tab. V. figg. 6, 6 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin.

Total length, incl. mandible, 13 millim. Carap. 6 × 4·5. Pat.+tib. i. 6·5; iii. 5; iv. 6. Prot. iv. 5.

♂. Carapace deep mahogany-brown, almost black, finely impunctate-granulose; mandibles deep black, coarsely impunctate-granulose. Sternum pale mahogany-brown, finely granulose-impunctate, especially anteriorly; coxæ of legs orange-brown, smooth, not impunctate. Legs dull orange-brown. Abdomen dull orange-brown, shot with violet reflections. Palpus mahogany-brown, the two terminal segments darker.

Eyes similar to those of *C. falcula*, except that the anterior centrals are slightly larger and the clypeus is

barely equal to two diameters of an anterior central eye. Lower margin of fang-groove with five subequal teeth. Palpus: tibia, including spurs, about as broad as long; tibial spur on outer side broad, depressed, trifid, anterior and posterior branch broad, central divergent, slender, curving downwards. The segment bears on the outer side rather below the middle a long broad unciform process, its base laminate anteriorly, apically strongly uncate. This process almost constitutes a tibial spur in itself, but is merely an exceedingly developed "hook" attached to the anterior margin of the segment. Bulb bearing anteriorly a pair of black curved spiniform spurs, coalescing towards the base; outside of these is set a racket-shaped membranous appendage. Tarsus of palp broadly produced at the base on the outer side, being bluntly conical on the upperside. Legs: protarsi i. and ii. with two pairs of spines beneath; tibia i. with six pairs, tibia ii. with five pairs of spines beneath.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

### 9. **Corinna mucronata,** sp. n. (Tab. V. figg. 7, 7 *a*, ♂; 8, 8 *a*, ♀.)

Type ♂, cotype ♀, in coll. Godman & Salvin.

♂. Total length 11·5 millim. Carap. 5×4. Pat.+tab. i. 5·75; iii. 4·5; iv. 5·75. Prot. i. 3·5; iv. 4·75. Sternum 2·25×2.

♂. Carapace and mandibles dull black, rugulose, impunctate; sternum and legs red-brown, smooth, except the anterior area of femora i., which is slightly granulose. Legs clothed with fine silky hairs. Abdomen dull clay-yellow, clothed with silky hairs; with a red-brown, dorsal, anterior, elongate-oval, coriaceous scutum, its posterior margin scarcely reaching the middle of the abdomen.

Carapace gradually inclined behind. Posterior row of eyes strongly procurved, eyes subequal, nearly equidistant; anterior row procurved; centrals larger, two-thirds of their diameter apart, half a diameter from the laterals. Clypeus equal to two diameters of an anterior central eye. Lower margin of fang-groove with five subequal teeth. Maxillæ less than twice as long as the labium, rounded, and inclined over it. Sternum almost circular. Tibia i. with 4—5 spines beneath, no apical pair. Tibiæ ii. with 3—3 spines beneath. Protarsi i. and ii. with 2—2 spines, no central apical spine.

Palpus: femur with a row of erect bristles beneath. Tibia longer than the patella, twice as long as broad, bearing on the outer side two apophyses; the upper one (seen from above) straight, slender, gradually narrowing from the base, its bluntly pointed apex directed forwards; the outer one much more complicate, consisting of a broad chitinous ribbon (its upper margin bearing two black prominences) folded over downwards and inwards at the apex, which is itself divided into two lobes, the upper rounded, the lower aculeate.

Bulb bearing a broad, flat, blade-like curved spur, starting from a broader base on the inner apex, and directed outwards, its point coinciding with a somewhat **S**-shaped membranous process which starts from the outer apex of the bulb. The base of the tarsus is produced on the outer side into a broadly pointed spur.

♀. Total length 14 millim. Carap. 5·5×4·25. Pat.+tib. i. 5·75; iii. 4·5; iv. 5·75. Prct. i. 3·5; iv. 5. Sternum 2·75×2·5.

Carapace and mandibles deep dull mahogany-black, rugulose-impunctate and granulose. Sternum and mouth-parts dull deep orange-brown, smooth. Legs dull pale orange-brown, smooth. Abdomen olive-brown, with fine, very short silky hairs.

Carapace narrowed in front, one-half narrower than the thoracic area. Caput not gibbous, not precipitous behind, gradually inclined to the posterior margin of the carapace. Eyes closely grouped. Posterior row procurved, subequal; centrals one and a half diameters apart, two diameters from laterals. Anterior row procurved; centrals larger, one-half a diameter apart, less than this from laterals. Central anteriors just one-half a diameter from central posteriors. Clypeus equal to one and a quarter diameters of an anterior central eye. Lower margin of fang-groove with five teeth. Sternum smooth, scarcely longer than broad; labium half the length of the maxillæ, the latter short, curved, convex on the outer side; trochanter of palpus attached about the middle.

Legs smooth, clothed with very fine hairs; tibia i. with five pairs of spinners (no apical pair); tibia ii. with four spines outside, two inside on the apical half of the segment. Protarsi i. and ii. with two pairs of spines beneath, no apical spines. Tarsi and apex of protarsi clothed with scopuliform hairs.

Vulva very simple, consisting of a convex chitinous area, with a semicircular chitinous rim anteriorly and a broad dark posterior margin; the posterior margin is slightly concave at its centre on the upper edge of the genital rima.

*Hab.* PANAMA, Bugaba (*Champion*).

The male of this species is closely allied to *C. bellator* (L. Koch), from Colombia, of which the type is now before me, but it is quite distinct.

### 10. **Corinna nervosa,** sp. n. (Tab. V. figg. 9, 9 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin.

Total length 9 millim. Carap. 4 × 3. Pat.+tib. i. 4·5; iii. 3·25; iv. 4·5. Prot. iv. 3·75.

♂. Carapace and mandibles deep mahogany-brown, coarsely granulose-impunctate. Sternum and coxæ of legs dark mahogany-brown, granulose-impunctate. Legs dull orange-brown. Abdomen clothed with yellow-grey pubescence, having a smooth wedge-shaped space in the dorsal central anterior region.

Eyes similar to those of *C. falcula* and *C. uncata*, except that the lateral anteriors are almost in contact with the central anteriors and the clypeus is but one and a quarter diameters of an anterior central eye. Lower margin of fang-groove with five subequal teeth.

Palpus: tibia as broad as long; tibial spurs two, the upper one broad, concave beneath, rather bilobate at the apex, the lower one bifid, anterior branch sharp, posterior branch blunt. Bulb bearing a short, stout, strongly curved, spiniform spur, extending from the inner to the outer side, with a racket-shaped membranous appendage situated far from the base of the spine, their apices being in contact. Base of tarsus strongly produced on the outer side in a bilobate form of spur, its apical lobe lying between the two tibial spurs.

Legs granulose.

*Hab.* GUATEMALA (*Sarg*); PANAMA, Bugaba (*Champion*).

### 11. **Corinna bicuspis,** sp. n. (Tab. V. figg. 10, 10 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin.

Total length 9·5 millim. Carap. 4·5 × 3·25. Pat.+tib. i. 5; iii. 4; iv. 5·25. Prot. iv. 4·25.

♂. Carapace, mandibles, and sternum black, impunctate-granulose. Legs orange-brown, granulose. Abdomen brown, with a large, finely granulose chitinous scutum on the anterior dorsal third.

Eyes similar to those of *C. nervosa*; clypeus equal to two and a quarter diameters of an anterior central eye. Lower margin of fang-groove with six subequal teeth. Legs as in *C. nervosa*.

Palpus: tibia broader than long, with two large spurs, the upper one simple, very stout, concave beneath, the lower one with two processes at its apex, one rounded, convex, shiny black, the other uncate, springing from the somewhat concave apex of the process. Bulb with two short spurs, the inner one more slender, sharp, and simple at the apex, the other tending to be bifid and broader; beyond these in the same transverse line is a small racket-shaped membranous appendage. Tarsus very strongly produced at the base on the outer side above, the process being bilobate, each lobe stout, incurved, and bluntly pointed at the apex.

*Hab.* MEXICO, Amula in Guerrero (*H. H. Smith*).

### 12. **Corinna paradoxa,** sp. n. (Tab. V. figg. 11, 11 *a–e*, ♂.)

Type, ♂, in coll. Godman & Salvin.

Total length 9 millim. Carap. 4 × 3. Pat.+tab. i. 4·75; iii. 3·5; iv. 4·75.

♂. Carapace and mandibles deep mahogany-brown, impunctate-granulose; sternum and maxillæ paler; legs orange-brown, granulose. Abdomen brown, with two pale spots in the centre of the dorsal area and a single pale spot immediately above the spinners.

Eyes and carapace as in *C. falcula*; anterior row of eyes strongly procurved; centrals almost half a diameter apart, the same distance from the laterals. Legs: tibia i. with five pairs of spines beneath; protarsus i. with two pairs; tibia ii. with four pairs beneath. Carapace gradually convex, central fovea shallow.

Palpus: patella very short, convex, scarcely longer than broad. Tibia very broad, its apex above produced into a broad, blunt point, concave beneath, directed over the base of the tarsus: it bears two large lateral spurs on the outer side; the upper one more or less simple, rounded, convex, bicuspid, the upper branch very convex, terminating in a short blunt black point, concave beneath; the lower spur has a large concave area at its base on the inner side, whence springs a pale elongate slender process, directed forwards. Above this area lies on the inner side a shining chitinous convex piece, concave within. The apex of the spur is bifid, the inner branch uncate, the outer longer and straight.

Bulb bearing two dark spurs at its apex and a long slender membranous process. The larger spur is very broad (almost the whole width of the bulb) at the base, narrowing to a point (seen from above), but (seen from the inner side) is concave and broad at the apex. The smaller spur, lying between the former and the membranous process, is shorter and also broader when seen from the inner side.

The tarsus is produced into a very stout sinuous process at its base on the outer side. (This last and the two tibial spurs are very difficult to see, since they all lie closely together.) Lower margin of fang-groove with five subequal teeth.

*Hab.* GUATEMALA, near the city (*Stoll*).

### 13. **Corinna præceps,** sp. n. (Tab. V. fig. 12, ♀.)

Type, ♀, in coll. Godman & Salvin.

Total length 10 millim. Carap. 4×3. Pat.+tib. i. 4·25; iii. 3·25; iv. 5. Prot. i. 2·5; iv. 3·5. Sternum 2×1·75.

♀. Colour and structure as in *C. mucronata*, but the carapace and mandibles are blacker, and the legs darker orange-brown. Carapace and mandibles less strongly rugulose-impunctate. Eyes grouped more closely, anteriors almost in contact. Lower margin of fang-groove with five teeth. Central anterior eyes only very slightly larger than laterals; clypeus just over one diameter of an anterior central eye. Sternum very slightly granulose anteriorly; legs smooth. Tibia i. with three pairs of spines beneath, no apical pair; ii. with three spines on the outer side. Protarsus i. with two pairs of spines and no apical spine.

Vulva exceedingly similar to that of *C. nava*; consisting of two oval concavities divided by a narrow chitinous bridge connecting the anterior and posterior margins; the anterior and lateral margins are rugulose and impunctate, the posterior margin broader and smooth, shining in the middle. There is no convex ridge running from behind into each concavity.

*Hab.* MEXICO, Amula in Guerrero (*H. H. Smith*).

### 14. **Corinna retusa,** sp. n. (Tab. V. figg. 13, 13 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin.

Total length 9 millim. Carap. 4·25×3. Sternum 2×1·75. Pat.+tib. i. 4; iii. 3·25; iv. 4. Prot. i. 2; iv. 3·75.

♀. Carapace and mandibles deep mahogany-brown, finely granulose. Sternum and legs paler mahogany-brown, granulose. Abdomen clay-yellow, its anterior margin and a shoulder-spot brown; also a brown, lanceolate, central anterior dorsal band, with a lateral line on each side of its broadest part, becoming suddenly narrowed to a thin line posteriorly, with a longer transverse lateral line on each side at its extremity, which is situated at the middle of the abdomen. The posterior dorsal and lateral areas are dusky brown.

Structure similar to that of *C. luctuosa*, except that the coxæ of the legs are only very slightly and all the other segments, except the femora, less closely granulose. The legs and abdomen are clothed with much longer hairs and spines. Anterior row of eyes very strongly procurved. Clypeus equal to one and a half diameters of an anterior central eye. Lower margin of fang-groove with six teeth. Tibia i. with five pairs of long spines; no apical pair. Tibia ii. with four spines on the outer side, three on the inner side. Protarsi i. and ii. with two pairs of spines beneath; no apical spine.

Vulva consisting of a circular convex area, somewhat bilobate in the centre, having a large subtriangular transverse cavity about the middle, and another smaller one just in front of it.

*Hab.* GUATEMALA (*Sarg*).

### 15. **Corinna luctuosa,** sp. n. (Tab. V. fig. 14, ♀.)

Type, ♀, in coll. Godman & Salvin.

Total length 16 millim. Carap. 6×5. Pat.+tib. i. wanting; iii. 5·25; iv. wanting. Sternum 3×2·5.—Smaller ♀. Total length 11·5 millim. Carap. 5×4. Pat.+tib. i. 5; iii. 4; iv. 5. Prot. i. 3·5; iv. 4. Sternum 2·5×2.

♀. Colour similar to that of *C. mucronata*, but the legs darker mahogany-brown. Abdomen dull clay-yellow, clothed with very fine silky pubescence.

Structure similar to that of *C. mucronata*, but the lower margin of the fang-groove with seven teeth, and the sternum and legs closely granulose. Clypeus high, two and a quarter diameters of an anterior central eye. Tibia i. with 6—6 spines, one pair being apical. Tibia ii. with 5—5 spines, one pair apical. Protarsi i. and ii. with 2—2 spines, but no small central apical spine.

Vulva very simple, consisting of a chitinous convexity with a large circular concavity towards the posterior margin. Across the cavity are directed many stiff bristles from its anterior margin.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

### 16. **Corinna saga,** sp. n. (Tab. V. fig. 15, ♀.)

Type, ♀, in coll. Godman & Salvin.

Total length 7·5 millim. Carap. 3×2. Pat.+tib. i. 3; iii. 2; iv. 3·5. Prot. i. 1·75; iv. 2·5. Sternum 1·75×1·5.

♀. Carapace and mandibles mahogany-black, rugulose and granulose-impunctate. Legs and sternum pale mahogany-brown, granulose. Abdomen olive-brown, paler beneath, clothed with short stiff black bristles.

Structure as in *C. nava* and *C. luctuosa*, except that the lower margin of the fang-groove has five teeth. Anterior row of eyes slightly procurved, equidistant, centrals slightly larger. Clypeus equal to one diameter of an anterior central eye. Sternum and legs granulose. Tibia i. with 4—5 spines beneath, one pair being apical; tibia ii. with 3—4 spines beneath. Protarsi i. and ii. with two pair of spines beneath.

Vulva simple, consisting of a convex area, bearing a small fovea close to the posterior margin.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

### 17. **Corinna nava,** sp. n. (Tab. V. fig. 16, ♀.)

Type, ♀, in coll. Godman & Salvin.

Total length 13 millim. Carap. 5·25×4. Pat.+tib. i. 5; iii. 4; iv. 5·25. Prot. i. 3; iv. 4·25. Sternum 2·75×2.

♀. Colour and structure as in *C. luctuosa*, except that the sternum and coxæ, with a small area on the femora only of the legs, are granulose, and that the lower margin of the fang-groove has six teeth. The clypeus is equal to two diameters of an anterior central eye. Tibia i. with six spines on the outer side, four on the inner (apical pair incomplete); iii. with three spines on the outer side, and two very small ones on the inner side. Protarsus i. and ii. with two pairs of spines; no small central apical spine.

Vulva consisting of a very broad chitinous piece, having a deep oval concavity on each side of a broad, smooth, longitudinal piece connecting the anterior and posterior margins. From the posterior margin of each concavity a narrow convex ridge runs back and disappears in the centre of the cavity. Long hairs are directed backwards over the whole area, from the anterior marginal region.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

### 18. **Corinna variegata,** sp. n. (Tab. V. figg. 17, 17 *a–d*, ♀.)

Type, ♀, in coll. Godman & Salvin.

Total length 16 millim. Carap. 6×4·75. Pat.+tib. i. 7; iii. 4·5; iv. 7. Prot. i. 3·5; iv. 4·5. Sternum 3×2.

♀. Carapace and mandibles black, dull, strongly rugulose-impunctate, the mandibles granulose-impunctate

Sternum and mouth-parts pale piceous, smooth. Coxæ and trochanters of legs dull orange, smooth. Femur i. dark piceous, granulose on the outside area in front. Femur ii. paler piceous, shading to bright orange towards the base. Femora iii. and iv. paler orange, with the apical half annulate with piceous. Legs i. and ii. deep piceous-brown, shining; tibiæ iii. and iv. orange, with piceous basal annulation, extending over half the segment. Protarsi iii. and iv. piceous, tarsi paler. Abdomen dull olive-brown, almost glabrous, with two large, dull white, irregular oval blotches situate just in front of the middle of the dorsal area.

Carapace very broad in front, only one-quarter narrower than thoracic area. Caput gibbous, precipitous behind (not convex at the central fovea), closely rugulose-impunctate. Eyes widely separate. Posterior row procurved, eyes subequal; centrals two and a half diameters apart, three and a half from laterals. Anterior row procurved; centrals larger, just over half a diameter from central posteriors, the same distance from each other, and one and a half diameters from laterals. Anterior laterals smaller than posterior laterals, both situate on a common tubercle. Lower margin of fang-groove with four teeth. Sternum smooth, distinctly longer than broad; labium less than half the length of the maxillæ, the latter long, straight, concave on the outer side, enlarged at the apex. Trochanter of palp attached considerably behind the middle of the coxa.

Legs clothed with numerous, semi-erect, fine, scattered setæ. Tarsi and apex of protarsi of all four pairs scopulate. Tibia i. outside with five, inside with six spines, including a small apical pair. Tibia ii. with a single outer row of five spines, including the small apical spine. Protarsi i. and ii. with three pairs of spines and a single central apical spine. Protarsi iii. and iv. with a short brush of scopuliform hairs at the apex.

Vulva very simple, consisting of a convex chitinous area, with a small circular fovea in the centre, close to the posterior margin. In some specimens this fovea has a minute convexity at the bottom.

*Hab.* GUATEMALA, near the Mexican boundary, Muxbal (*Sarg*).

This spider is very similar to *C. annulipes* (Tacz.), according to M. Simon's identification and description in Ann. Soc. Ent. Belg. 1896, p. 420, but there are probably numbers of species with the legs similarly coloured.

### 19. **Corinna semiluna,** sp. n. (Tab. V. fig. 18, ♀.)

Type, ♀, in coll. Godman & Salvin.

Total length 12 millim. Carap. 5×3·25. Sternum 2·25×1·5. Pat.+tib. i. 4·25; iii. 3; iv. 4·5. Prot. i. 2; iv. 3.

♀. Carapace and mandibles dull black, rugulose or granulose-impunctate. Sternum pale mahogany-brown, granulose. Legs deep orange-brown, not granulose, femora very slightly so. Abdomen unicolorous olive-brown, paler beneath, with a single small, though conspicuous, dull white semilunular dot immediately above the spinners.

Structure similar to that of *C. variegata*, but the anterior row of eyes is straight, not procurved, and the maxillæ are much shorter in proportion to the labium. Tibia i. with five pair of spines beneath, one pair being apical. Tibia ii. with four spines on the outer side and two on the inner side at the apex. Protarsi i. and ii. with three pairs of spines beneath and a small, single, central apical spine.

Vulva: a figure is given on Tab. V. fig. 18.

*Hab.* MEXICO, Amula in Guerrero (*H. H. Smith*); GUATEMALA (*Sarg*).

### 20. **Corinna mexicana.**

*Hypsinotus mexicanus,* N. Banks, Proc. Calif. Acad. Sci. (3) i. p. 229, t. 16. fig. 18[1].

♂ ♀. Total length 10–11 millim.

*Hab.* MEXICO, Tepic[1].

### 21. Corinna testacea.

*Hypsinotus testaceus*, N. Banks, loc. cit. p. 229, t. 16. fig. 17[1].

♂. Total length 7 millim.

*Hab.* Mexico, Tepic[1].

## TRACHELAS.

*Trachelas*, L. Koch, Die Drassiden, p. 2 (analytical table) (1866); Abhandl. nat. Ges. Nürnberg, 1872, p. 146, t. 6.

Type *T. nigricans*, L. Koch. Colombia.

Legs almost entirely without spines. Tibiæ, protarsi, and tarsi of legs i. and ii. sometimes cuspulate, sometimes plain, beneath. Lower margin of mandibles with from 2–4 teeth. Posterior row of eyes much wider than the anterior row, or only slightly wider, recurved. Maxillæ long, straight, concave on the outer side, dilate at the apex. Median spinners longitudinally compressed. Sternum produced into a square, or conical, projection between coxæ iii. and iv.

E. Simon quotes the presence of two teeth only on the lower margin of the mandible fang-groove as one of the chief distinguishing characters of the *Tracheleæ* as a group of the Corinninæ. Several of the Central-American species, undoubtedly belonging to *Trachelas*, however, have 3–4 teeth.

M. Simon has selected *T. minor*, O. P.-Cambr., from Jericho, as the type of the genus, since Dr. L. Koch evidently acquiesced in the reference of this species to his genus *Trachelas*. Both were described in the same year. The type of *T. nigricans* is now before me.

The species known to me may be tabulated thus:—

*Males.*

A. Maxillæ evenly rounded on the external apical margin, often dilate, but not definitely produced or denticulate. Femur, patella, tibia, and protarsus of leg iii. without any anterior marginal row of small tubercles. Lower margin of fang-groove with two stout teeth. Basal segment of mandible distinctly excavate on the inner margin beneath.

I. Sternum distinctly granulose or rugulose-impunctate.

i. Dorsal area of abdomen more or less scutulate.

*a*. Tibia of palpus twice as long as broad. (Bulb terminating in a single broad, sinuous, lanceolate spur, its apex aculeate.) . . . . . *lanceolatus*, sp. n.

*b*. Tibia of palpus not, or only slightly, longer than broad.

1. Tibia of palpus, in profile from the outside, much broader at the apex than at the base, not longer than broad. Apical spur of tibia longer, stouter, and slightly curving upwards. Apex of bulb with a transverse oblong piece, its anterior outer angle produced into a stout spine . . . . . *transversus*, sp. n.

2. Tibia of palpus, in profile from outside, scarcely broader at the apex than at the base, only about one-quarter longer than broad.

Apical spur of tibia shorter, more slender, and not curving upwards. Apex of bulb terminating in a very short slightly sinuous spine . . . . . *spinulatus*, sp. n.

ii. Dorsal area of abdomen not scutulate. (Tibia of palpus one-half longer than broad, with a short slender obliquely depressed apical external spur. Bulb basally inflated, terminating in a spiraloid lamellular process, with a fine apical sinuous-uncate point.) . . . . . *spirifer*, sp. n.

II. Sternum smooth, with a few very shallow impressions, but no distinct granules, rugulosities, or punctures. (Tibia scarcely longer than broad, with a short slender spur on the outer apical margin directed almost straight forwards. Bulb much inflated at the base, with a broad slightly sinuous lanceolate spur at its apex.) . . . . . *bulbosus*, sp. n.

B. Maxillæ with a more or less developed, individually variable, dentiform or triangular prominence on the external apical margin. Femur, patella, tibia, and protarsus of leg iii., or sometimes the tibia or the protarsus only, bearing an anterior marginal row of minute tubercles. Lower margin of fang-groove with 3–4 teeth (tooth i. usually very small and inconspicuous where four teeth are present). Basal segment of mandible straight, not excavate on the inner margin beneath.

1. Tibia of palpus one-half longer than broad. Bulb basally inflated, with two short, apical, subsimilar, curved spines, their points directed upwards into the tarsal concavity. The tibia alone of leg iii. with an anterior marginal row of minute tubercles . . . . . *bispinosus*, sp. n.

2. Tibia of palpus twice as long as broad (*T. bispinosus* and *T. truncatulus* both bear a small broad apical spur). Bulb basally much narrower and truncate, with a single small straight spine at the apex. This spine has a minute cusp at its base, and a thin membranous process lies near it on the other side. Femur, patella, tibia, and protarsus of leg iii. with an anterior marginal row of minute tubercles . . . . . *truncatulus*, sp. n.

*Females.*

A. Lower margin of fang-groove with two teeth. Leg iii. without any anterior marginal row of small tubercles on the femur, patella, tibia, or protarsus. Sternum scarcely produced behind, obtusely pointed.

i. Sternum smooth, without granulations or rugulosities. Oviducts opening into two large deep concavities separated by a narrow septum, which is less than half the diameter of one of them apart . . . . . *bulbosus*.

ii. Sternum distinctly granulose or rugulose-impunctate.

*a*. Oviducts opening into two deep medium-sized concavities separated by a septum equal to or wider than the diameter of one of them; the openings not visible. Size much larger, length 10 millim. . . . . *lanceolatus*.

*b*. Size much smaller, length 6–7 millim. Orifices opening into a common shallow concavity at its anterior margin.

1. Orifices of oviducts small and widely separate, at least four diameters apart . . . . . *transversus.*
2. Orifices larger and much closer together, about one diameter apart . *similis,* sp. n.

B. Lower margin of fang-groove with 3–4 teeth (the first tooth, when four are present, being usually very minute). Leg iii. with an anterior marginal row of small tubercles on the femur, patella, tibia, and protarsus, or on one or other of these segments. Sternum distinctly produced behind and squarely truncate. Orifices of oviducts very small, close together in the centre of a large shallow concavity. Posterior pair of spermathecæ very small, piriform; anterior pair much larger, piriform, and inclined over the median line of the epigynal area . . . . . *bispinosus.*

### 1. **Trachelas mexicanus.**

*Trachelas mexicana,* N. Banks, Proc. Calif. Acad. Sci. (3) i. p. 226, t. 13. fig. 27[1].

♀. Total length 8 millim.

*Hab.* Mexico, Tepic[1].

This species is obviously very closely allied to *T. ruber*, Keys., and, according to Banks, *T. tranquillus* (Hentz). The figure given by Banks, of the vulva, on tab. xiii. fig. 27, is not sufficiently detailed to enable one to separate *T. mexicanus* from *T. ruber*, Keys., or *T. lanceolatus*, F. Cambr. If the specimen is adult, the fact stated by Banks, "legs with fine hairs, no spines," might prove it distinct from either, for, except in immature examples, the first two pairs of legs in *T. lanceolatus* are always more or less cuspulate, while the type of *T. ruber*, Keys., also presents this same characteristic. Banks does not mention the number of teeth on the fang-groove, and the value of the relative position of the eyes is considerably discounted by individual variation. Possibly he has carefully compared the Mexican form with examples from Massachusetts, whence the type of *T. ruber*, Keys., hails. If so, his decision that the former is distinct from it is valuable, but neither his description nor figure unfortunately will enable others to benefit by this conclusion.

### 2. **Trachelas lanceolatus,** sp. n. (Tab. V. figg. 20, 20 *a–d*, ♂ ; 21, 21 *a–f*, ♀ .)

Type ♂, cotype ♀, in coll. Godman & Salvin.

♂. Total length 10 millim. ♀. Total length 13 millim.

♂ ♀. Carapace and mandibles deep black-mahogany-brown. Legs dark orange-brown, the second pair paler. Abdomen dull clay-yellow, in the male with a rosy scutulate dorsal area. The four muscular scars noticeable in this genus are also present, as in other species. Sternum and mouth-parts very much paler than the carapace, mahogany-brown.

♂. Carapace and mandibles rugulose-impunctate, less strongly on the cephalic area. Posterior row of eyes strongly recurved, centrals one and a half diameters apart, two from laterals. Anterior row procurved, centrals three-fourths of a diameter apart, three-fourths from laterals; eyes subequal. Clypeus less than a diameter of anterior centrals. Mandibles deeply excavate on the inner margin towards the base, viewed from beneath. Lower margin of fang-groove with two teeth, upper with three teeth. Sternum about

one-third longer than broad, granulose-impunctate (each hair springs from a cup-like cavity whose edges form a low granule), obtusely pointed behind, scarcely produced.

Palpus: tibia of palpus twice as long as broad, with a very small spur on the outer apical margin, just below the middle. Bulb elongate piriform, not basally much inflated, bearing at its apex a single broad sinuous lanceolate pointed spine. Legs: tarsi and protarsi i. and ii. cuspulate beneath; tibiæ i. and ii. with scattered cuspules extending over the apical half. Leg iii. without anterior marginal row of tubercles.

♀. Structure as in the male, except that the mandible is not excavate on the inner side, or only very slightly, while the tibiæ of i. and ii. are cuspulate almost to the base.

Vulva consisting of two deep concavities separated from each other by a space rather wider than their diameter, themselves situated about one and a half diameters from the posterior margin. Anteriorly lie, just beneath the surface, two large oval-elongate brown vessels (spermathecæ) covering a space nearly one-half broader than that covered by the two concavities together, and nearly twice longer.—N.B. The form of the vulva is very variable.

*Hab.* Mexico, Amula, Orizaba, Teapa (*H. H. Smith*), Jalapa (*M. Trujillo*).

It is highly probable that this form will prove to be identical with *T. ruber*, Keys., from N. America, and with *T. mexicanus*, Banks. But although the type of the former is now before me, I cannot feel absolute confidence in their identity, without the males. A fairly representative series of this species from Massachusetts would settle the point at once. The figure given by Banks of the vulva of his *T. mexicanus* is not detailed enough to furnish sufficient evidence for identification. One must therefore leave the question in abeyance and for the time being characterize both male and female under another name.

### 3. **Trachelas transversus,** sp. n. (Tab. VI. figg. 1, 1 *a*, ♂; 2, ♀.)

Type ♂, cotype ♀, in coll. Godman & Salvin.

♂. Total length 6–7 millim. ♀. Total length 7·5–8 millim.

♂ ♀. Carapace and mandibles mahogany-brown; legs orange-brown, first two pairs darker. Abdomen clay-yellow, with, in the male, a rosy scutulate dorsal area, with the usual four muscular scars. Sternum and mouth-parts pale mahogany-brown. Carapace and mandibles rugulose-impunctate; the latter excavate on the inner margin beneath. Lower margin of fang-groove with two teeth. Posterior row of eyes strongly recurved, centrals one and a half diameters apart, two and a half from laterals. Anterior row procurved; centrals three-fourths a diameter apart, slightly less from laterals. Central anteriors and lateral anteriors subequal. Clypeus less than a diameter of an anterior central eye.

Sternum granulose-impunctate, with or without a smooth narrow central area, about one-fourth longer than broad, obtusely pointed behind. Maxillæ evenly rounded on the outer apical margin.

Legs: tibiæ, protarsi, and tarsi i. and ii. cuspulate beneath, tibia ii. only slightly. Leg iii. without any anterior marginal row of tubercles.

Palpus: tibia (in profile from outside) much broader across the apex than across the base, as broad as long. Apical spur stout, longer than in *T. spinulatus*, and slightly curved upwards. Apex of bulb with a transverse oblong piece, its outer anterior angle produced into a stout spine. Tarsus terminating broadly and obtusely at the apex.

♀. Structure similar to that of the male, except that the mandible is not excavate on the inner side, and the cuspules beneath legs i. and ii. are much less numerous.

Vulva: the external orifices of the oviduct are small and set wide apart, at least four diameters, close to the anterior margin of a broad transverse oval concavity. The oviducts can be noted looped over in front of the orifices. The two pairs of spermathecæ are large: the anterior pair elongate-oval, in contact along the median line; the posterior pair are more or less symmetrically disposed behind, forming the posterior

limit of the epigynal area. The position of the orifices and the general character of the spermathecæ are probably fairly constant, otherwise the conformation of the vulva is liable to individual variation.

*Hab.* MEXICO, Teapa (*H. H. Smith*).

### 4. **Trachelas spinulatus,** sp. n. (Tab. VI. figg. 3, 3 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin.

Total length 6 millim.

♂. Colour the same as in *T. transversus*, and the abdomen with a dorsal scutulate area.

Structure similar to that of *T. transversus*, except that the mandibles are more deeply excavate beneath on the inner margin.

Palpus: tibia (in profile from outside) scarcely broader at the apex than at the base, about one-fourth longer than broad; apical spur shorter than in *T. transversus* and not curved upwards. Apex of bulb terminating in a short simple spine, whose apex is directed inwards.

*Hab.* GUATEMALA (*Sarg*).

### 5. **Trachelas spirifer,** sp. n. (Tab. VI. figg. 4, 4 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin.

Total length 6·5 millim.

♂. Carapace and mandibles dark mahogany-brown. Legs i. and ii. orange-brown, iii. and iv. paler. Abdomen olive-brown. Sternum mahogany-brown.

Carapace rugulose-impunctate. Sternum slightly longer than broad, shallowly rugulose. Mandibles excavate on the inner margin. Lower margin of fang-groove with two teeth. Maxillæ evenly rounded on the external apical margin. Tibia i. cuspulate beneath the apical half, at most; tibia ii. sparsely cuspulate beneath the apex. Protarsi and tarsi i. and ii. cuspulate beneath and with a slight scopula. Abdominal dorsal region not scutulate. Posterior row of eyes strongly recurved; centrals one and a half diameters apart, two and a half from laterals. Anterior row procurved; centrals two-thirds of a diameter apart, three-fourths from laterals. Clypeus less than one diameter of an anterior central eye. Leg iii. without anterior marginal row of tubercles.

Palpus: tibia one-half longer than broad, with a short spur on the outer side directed downwards. Bulb basally inflated, terminating in a spiraloid lamellular process, with a fine sinuous-uncate apex.

*Hab.* GUATEMALA (*Sarg*).

### 6. **Trachelas bulbosus,** sp. n. (Tab. VI. figg. 5, 5 *a*, *b*, ♂; 6, ♀.)

Type ♂, cotype ♀, in coll. Godman & Salvin.

♀. Total length 7 millim.

♂. Carapace and mandibles mahogany-brown, sternum a little paler. Legs i. and ii. orange-brown; iii. and iv. paler. Abdomen olive-brown, with the four normal muscular scars. Abdomen with a scutulate dorsal area.

Carapace rugulose-impunctate. Sternum one-fourth longer than broad, smooth. Mandibles excavate on the inner margin. Lower margin of fang-groove with two teeth. Maxillæ evenly rounded on the external apical margin. Tibiæ i. and ii. cuspulate beneath the apex only. Tarsi and protarsi cuspulate beneath and bearing a thin scopula. Leg iii. without any anterior marginal row of tubercles.

Posterior row of eyes strongly recurved, centrals two diameters apart, two and a half from laterals. Anterior row only very slightly procurved; centrals half a diameter apart, half a diameter from laterals. Clypeus less than one diameter of an anterior central eye.

Palpus: tibia scarcely longer than broad, with a small spur on the outer apical margin directed almost straight forwards. Bulb very much inflated at the base, with a broad sinuous lanceolate spur at its apex. This spur is somewhat similar to that of *T. lanceolatus*, but is less sinuous, broader, and closer to the apex of the tarsus; the bulb is also much more attenuate, while the tibia is twice as long as its breadth.

♀. Colour and general structure similar, except that tibia ii. has no cuspules beneath, even at its apex.

Vulva consisting of two large oval concavities separated by a narrow septum, less than half their transverse diameter apart; the central septum disappearing posteriorly into the general concavity formed by the two posterior portions of the two concavities. The oviducts are distinct on the outer side of each concavity; their orifices open into the anterior end of each concavity.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 7. **Trachelas bispinosus,** sp. n. (Tab. VI. figg. 7, 7 *a–d*, ♂; 8, 8 *a–c*, ♀.)

Type ♂, cotype ♀, in coll. Godman & Salvin.

Total length 5 millim.

♂. Carapace and mandibles mahogany-brown, sternum a little paler. Legs i. and ii. orange-brown; iii. and iv. paler. Abdomen clay-yellow, with a scutulate dorsal area.

Carapace rugulose-impunctate, assuming the form of lines of granules converging towards the central foveæ. Sternum almost circular, only slightly longer than broad, granulose-impunctate, with a narrow smooth central longitudinal anterior area. Maxillæ with a blunt spur on the outer apical margin. Mandibles straight, not excavate, on the inner margin. Lower margin of fang-groove with four teeth. Tarsi, protarsi, and tibiæ i. and ii. cuspulate beneath, the latter to their base. Tibia iii. alone with anterior marginal row of tubercles.

Eyes: posterior row recurved, centrals one and a quarter diameters apart, two from laterals. Anterior row procurved; eyes equidistant, two-thirds of a diameter apart. Central anteriors slightly larger than central posteriors.

Palpus: tibia one-half longer than broad, with a broad apical external process, about half the width of the segment, abruptly narrowed at the apex, and directed forwards and downwards. Bulb somewhat inflate basally, with, at the apex, two short, subsimilar, curved spines, their points directed upwards into the tarsal concavity.

♀. Colour and general structure as in the male, except that the maxillæ are evenly rounded on the outer anterior margin.

Vulva: the area covered by the two pair of spermathecæ is much longer than broad; the anterior pair larger, piriform, and inclined towards each other anteriorly; the posterior pair smaller, piriform, their small ends set towards each other transversely. The pair of orifices very small and black, set close together in the median line rather before the middle, in the centre of a deep concavity, whose anterior margin especially bears some long curving hairs, directed over the concavity. The oviduct is very variable in its course. The position of the orifices and the general character and position of the spermathecæ, however, are probably constant.

*Hab.* Panama, Bugaba (*Champion*).

### 8. **Trachelas truncatulus,** sp. n. (Tab. VI. figg. 9, 9 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin.

Total length 5·5–7 millim.

♂. Carapace, mandibles, and legs i. and ii. very dark mahogany-brown, almost black; sternum a little paler. Abdomen dull clay-yellow. Legs iii. and iv. pale yellow-brown.

Carapace impunctate. Lower margin of fang-grooves with four teeth. Mandibles not excavate on the inner margin. Maxillæ with a large triangular (or obtuse dentiform) prominence on the outer apical margin. Sternum one-fourth longer than broad, granulose-impunctate, with a central anterior smooth area. Femur, patella, tibia, and protarsi with a row of minute tubercles along the anterior margin. Protarsi and tarsi i. and ii. cuspulate beneath; tibia i. cuspulate throughout; tibia ii. for two-thirds of its length with a single row of cuspules. Abdomen with a scutulate dorsal area.

Eyes of posterior row recurved; centrals two diameters apart, three diameters from laterals. Anterior row procurved; centrals half a diameter apart, one-fourth from the laterals. Central anteriors scarcely larger than central posteriors.

Palpi: tibia twice as long as its breadth, with a very short, broad, inconspicuous spur on its anterior lower apex on the outer side; the apex of the spur is abruptly narrowed. Tarsus very narrow. Bulb also very narrow and not inflated basally, being also truncate, in profile; its apex is produced into a very small spine which bears another smaller cusp at its base. A thin spur of membrane lies outside this spur.

The truncate bulb is somewhat similar to that of *T. bispinosus*, but the table points out the various distinguishing characters.

*Hab.* MEXICO, Frontera in Tabasco (*H. H. Smith*).

### 9. **Trachelas similis,** sp. n. (Tab. VI. fig. 10, ♀.)

Type, ♀, in coll. Godman & Salvin.

Total length 8 millim.

♀. Colour similar to that of *T. bulbosus*, but much paler. Carapace orange-mahogany. Structure similar to that of the same species, except that the central posterior eyes are two and one-eighth diameters apart, three from the laterals. The central eyes are three-fourths of a diameter apart.

*Hab.* MEXICO, Orizaba (*H. H. Smith*).

## Subfam. *MICARIINÆ.*

The four genera including the species of this subfamily which have hitherto been taken in Central America may be distinguished as follows:—

A. Carapace not pedunculate.
  1. Abdomen not or only very slightly pedunculate.
    *a*. Posterior row of eyes procurved, eyes relatively larger and much closer together . . . . . CASTIANEIRA, Keys.
    *b*. Posterior row of eyes approximately straight, eyes relatively much smaller and more separate . . . . . MYRMECOTYPUS, O. P.-Cambr.
  2. Abdomen pedunculate in front, produced into a long, cylindrical, chitinous, rugulose pedicle.
    *a*. Posterior row of eyes approximately straight, eyes relatively larger and closer together . . . . . MAZAX, O. P.-Cambr.
    *b*. Posterior row of eyes strongly recurved, eyes relatively smaller and wider apart . . . . . APOCHINOMMA, Pavesi.
B. Carapace pedunculate behind, forming a long smooth pedicle . SPHECOTYPUS, O. P.-Cambr.

NOTE.—In Hist. Nat. Araign. éd. 2, ii. p. 175, E. Simon quotes *Myrmecotypus*, O. P.-Cambr., as a synonym of *Apochinomma*, Pavesi. He has kindly sent me an example, ♀, of this last-mentioned genus from Natal, which is closely allied to the Central-American form, the chief difference lying in the position of the eyes. The genus *Myrmecotypus* has been retained on the grounds that the posterior row of eyes is only slightly wider than the anterior and almost straight; the central posteriors are further from each other than from the laterals, and the central anteriors are much larger than the lateral anteriors. In *Apochinomma* (sec. ♀ received from E. Simon) the posterior row is very much wider than the anterior and strongly recurved; the central posteriors are closer together than to the laterals, and the central anteriors are only slightly larger than the laterals.

*Mazax* may prove to be congeneric with *Corinnomma severum*, Thor., the type of *Corinnomma*, Karsch.

# CASTIANEIRA.

*Castianeira,* Keyserling, Verh. zool.-bot. Ges. Wien, 1879, p. 335.
*Micariaulax,* Becker, Ann. Soc. Ent. Belg. xxii. p. 82 (1879).
*Pedo,* O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. pp. 219, 286 (1896).

Type, ♂, *C. rubicunda*, Keys., in Brit. Mus. Colombia.

Posterior row of eyes more or less strongly procurved, scarcely wider than the anterior row; central posteriors further from each other than from the laterals. Anterior row strongly procurved, centrals sometimes slightly larger, otherwise equal. Clypeus high, equal to two diameters of an anterior central eye. Lower margin of fang-grove with two small teeth. Maxillæ short and straight; labium broader than long, equal to about half the length of the maxillæ. Body clothed with plumose hairs, more or less scattered, often brightly coloured. Femora of all four pairs of legs and tibiæ and protarsi of the third and fourth pairs spinose, the first and second pairs less so. Tibiæ i. and ii. with a few pairs of spines beneath, variable in number and length. Protarsi i. and ii. with two pairs of spines beneath, but no central apical spine. Abdomen not furnished with a pedicular elongation; but, in both sexes, often with a dorsal and ventral scutum.

## 1. Castianeira dugesi.

*Micariaulax dugesii,* Becker, Ann. Soc. Ent. Belg. xxii. p. 83, t. 2. figg. 9, 10[1].

Type, ♂, in Mus. Roy. Belg.

*Hab.* Mexico, Guanajuato (*Dugès*[1]).

## 2. Castianeira ornata.

*Pedo ornatus,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 220, t. 26. figg. 14, 14*a–e* (♀)[1].
*Castianeira ornata,* O. P.-Cambr. loc. cit. p. 286[2].

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*[1]); Guatemala (*Sarg*).

## 3. Castianeira plumosa.

*Pedo plumosus,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 242, t. 31. figg. 12, 12*a–f* (♀)[1].
*Castianeira plumosa,* O. P.-Cambr. loc. cit. p. 286[2].

Type, ♀, in coll. Godman & Salvin. Total length 8·75 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*[1]).

## 4. Castianeira plorans.

*Pedo plorans,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 274, t. 33. figg. 10, 10*a–e* (♂), 11, 11*a* (♀)[1].
*Castianeira plorans,* O. P.-Cambr. loc. cit. p. 286[2].

Type ♂, cotype ♀, in coll. Godman & Salvin*. Total length, ♂ 6, ♀ 8 millim.

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* Males of *C. plorans* alone occur amongst the numerous females of the species 2–5 from Amula. It is possible that all these are merely varieties of one, *C. ornata.*

*Hab.* Mexico, Amula [1] and Omilteme in Guerrero (*H. H. Smith*); Guatemala (*Sarg*), Guatemala city (*Stoll*).

### 5. Castianeira lachrymosa.

*Pedo lachrymosus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 275, t. 34. figg. 4, 4 *a–d* (♀) [1].

*Castianeira lachrymosa*, O. P.-Cambr. loc. cit. p. 286 [2].

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith* [1]).

### 6. Castianeira flebilis.

*Castianeira flebilis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 286, t. 32. figg. 8, 8 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith* [1]).

### 7. Castianeira luctuosa.

*Castianeira luctuosa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 287, t. 32. figg. 9, 9 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 7·5 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith* [1]).

### 8. Castianeira lugens.

*Castianeira lugens*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 288, t. 32. figg. 10, 10 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 5·75 millim.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith* [1]).

### 9. Castianeira mexicana.

*Thargalia mexicana*, N. Banks, Proc. Calif. Acad. Sci. (3) i. p. 68, t. 13. fig. 38 [1].

*Hab.* Mexico, Tepic [1].

I have not seen a specimen of this species and cannot therefore judge of its position.

## MAZAX.

*Mazax*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 275 (1898).

Type *M. spinosa*, O. P.-Cambr. Mexico.

Posterior row of eyes approximately straight; eyes large, subequal, close together, centrals one and an eighth diameters apart, nearly one diameter from laterals; scarcely wider than anterior row. Anterior row procurved; centrals slightly larger than laterals, but smaller than any of the posterior eyes, less than one diameter apart, almost in contact with the laterals. Carapace not or only slightly contracted behind the

cephalic area. Abdomen produced in front into a cylindrical, rugulose pedicle, scutulate at the base, with or without a pair of spines. Both margins of the fang-groove with two minute teeth. Tibiæ and protarsi i. and ii. with pairs of spines beneath, varying in number and length. Femur of the palpus (♀) with four or five stout spines beneath, on the lower margin.

To this genus doubtless belongs *Apochinomma acanthaspis*, Sim., from the Amazons. The two species now recorded from Central America may be recognized as follows :—

*a.* Abdomen and abdominal scutum clothed with long hairs, the latter bearing in front a pair of stout spines articulated to a basal cusp. Abdomen globular, with an oblique band of white on each side about the middle, and an indistinct transverse dorsal bar towards the apex. Tibiæ i. and ii. with 2—2—2 pairs of spines beneath . . . . . *spinosa*, O. P.-Cambr.

*b.* Abdomen and abdominal scutum smooth, clothed with very fine short hairs only, without spines, but with two very fine bristles only in front of the scutum. Abdomen elongate-oval, with a narrow white cincture before the middle of the dorsal and lateral areas, broken where it meets the posterior margin of the scutum. Tibiæ i. and ii. with 2—2—2—2—2 spines and 2—2—2 respectively . . . . . *plana*, sp. n.

### 1. **Mazax spinosa.**

*Mazax spinosa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 276, t. 34. figg. 2, 2 *a–e* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*); Guatemala (*Sarg*).

### 2. **Mazax plana**, sp. n. (Tab. VI. fig. 11, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6·5 millim.

♀. Carapace and mandibles mahogany-brown, the latter striped with darker brown; sternum paler. Legs pale orange-yellow, the first pair paler, striped and mottled with brown. Inner side of the femora of all four pairs, and of the tibiæ of iii. and iv., and the outer side of the femora towards the base, suffused with brown. Protarsi of all four pairs suffused about the middle and on the underside with brown. Abdomen deep purple-brown, with a cincture of white just before the middle, interrupted in the middle on the dorsal line. On each side of the genital rima is a small piriform spot of white hairs. A ventral area with a white sinuous longitudinal blotch on each side and a finer sinuous line of pale spots extending from the piriform spot almost to the spinners on each side.

Structure similar in general respects to that of *M. spinosa*, but the abdominal scutum is hemispherical, smooth, and shining, without any spines, but with only a pair of very fine bristles. The abdomen itself is elongate-oval. There is no external structure belonging to the genital organs which can be used for purposes of specific comparison in either of these species.

*Hab.* Guatemala (*Sarg*).

## MYRMECOTYPUS.

*Myrmecotypus*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 123 (1894).

Type *M. fuliginosus*, O. P.-Cambridge. Mexico.

Posterior row of eyes approximately straight; eyes small, widely separate; centrals at least three diameters apart, two from the laterals. Anterior row almost straight; centrals much the largest of the eight and prominent, over one diameter apart, less than half a diameter from the laterals. Carapace more or less contracted behind the cephalic area, the latter bluffly rounded in front. Abdomen not produced into a cylindrical rugulose pedicle in front; the base sometimes scutulate and with two pairs of fine spines. Femur of palpus (♀) with four or five stout spines on the lower margin. Both margins of fang-groove with two small teeth.

### 1. **Myrmecotypus fuliginosus.**

*Myrmecotypus fuliginosus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 124, t. 18. figg. 6, 6 *a–d* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith* [1]).

### 2. **Myrmecotypus pilosus.**

*Corinnomma pilosum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 277, t. 33. figg. 3, 3 *a–e* (♂), 4, 4 *a*, *b* (♀) [1].

Type ♀, cotype ♂, in coll. Godman & Salvin. Total length, ♂ ♀, 5 millim.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith* [1]).

### 3. **Myrmecotypus dubius.**

*Corinnomma dubium*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 277, t. 34. figg. 1, 1 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith* [1]).

## SPHECOTYPUS.

*Sphecotypus*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 152 (1895).

Type *S. formicarius*, O. P.-Cambr. = *S. niger* (Perty). N. & S. America.

### 1. **Sphecotypus niger.**

*Myrmecia nigra*, Perty, Del. Anim. Art. Bras. p. 199, t. 39. fig. 9 (1833) [1]; ? Abbot's Drawings, t. 92. fig. 457 [2]; Walck. Ins. Apt. i. p. 386 (1837) [3]; C. L. Koch, Die Arachniden, ix. p. 15, fig. 701 (1842) [4]; E. Simon, Hist. Nat. Araign. éd. 2, ii. p. 169 [5]; Keyserling, Brazilianische Spinnen, p. 80 (1891) [6].

*Sphecotypus formicarius*, O. P.-Cambr. loc. cit. p. 153, t. 19. figg. 4, 4 *a–d* (♀) [7].

Total length of *S. formicarius* 26 millim.

*Hab.* NORTH AMERICA, Georgia [2].—PANAMA, Bugaba (*Champion* [7]).—VENEZUELA [5]; BRAZIL [1 3 4 6].

## Subfam. *CLUBIONINÆ.*

In this subfamily the terminal segment of the posterior pair of spinners is sometimes nearly as long as the basal segment, thus differing from that of the Corinninæ and Micariinæ, in which it is always short.

The genera represented in the Central-American fauna may be distinguished thus:—

### Genera.

A. Carapace without any central thoracic stria.
  1. Apical segment of posterior spinners very short, but distinct. Lower margin of fang-groove with two teeth situated a long distance from the base of the fang . . . . . CHIRACANTHIUM, K. Koch.
  2. Apical segment of posterior spinners very long, slender, flexuose. Lower margin of fang-groove with 3, 4, or 5 teeth situated near the base of the fang . . . . . EUTICHURUS, E. Simon.

B. Carapace with central thoracic stria distinctly marked.
  1. Central anterior eyes much larger than the laterals. Terminal segment of posterior spinners nearly as long as the basal segment . . . . . STROTARCHUS, E. Simon.
  2. Central anterior eyes not or slightly larger than the laterals. Terminal segment of posterior spinners very short.
    *a*. Posterior row of eyes procurved. Central posteriors more remote from each other than from the laterals . . . . CLUBIONA, Latr.
    *b*. Posterior row of eyes recurved. Central posteriors nearer to each other than to the laterals . . . . . LAURICIUS, E. Simon.

## CHIRACANTHIUM.

***Chiracanthium***, K. Koch, Die Arachniden, vi. p. 9 (1839).

Type *C. punctorium* (Villers) = *nutrix*, Walck. (sec. Simon). Europe.

Carapace without any central thoracic stria. Central anterior eyes not or scarcely larger than the laterals, subequal. Posterior pair of spinners with a short conical terminal segment. Lower margin of the fang-groove with two teeth situated some distance from the base of the fang; upper margin with two small teeth. Colulus absent.

Figures of the structural details of the European *C. nutrix* are given on Tab. VI. figg. 12, 12 *a–c* (♀).

### *Males* *.

*a*. Tibial spur of the palpus single, lying beneath the produced tarsal basal spur, on the outside . . . . . *ferum*, O. P.-Cambr.

*b*. Tibial spur of the palpus divided into two branches, with the tarsal basal spur lying between them. (Sec. Becker's figures 14, 14 *a*.) . . . *keyserlingi*, Becker.

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* The figure of *C. inclusa* (Hentz) is not sufficiently detailed to enable one to grasp the differential characters, that of *C. keyserlingi*, Beck., is, however, sufficient for the purpose.

### 1. Chiracanthium ferum.

*Chiracanthium ferum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 228, t. 29. figg. 8, 8 *a–e* (♂)[1].

*Chiracanthium debile*, O. P.-Cambr. loc. cit. p. 229, t. 29. figg. 7, 7 *a–c* (♀)[2].

Type of *C. ferum*, ♂, of *C. debile*, ♀, in coll. Godman & Salvin. Total length, ♂ 9, ♀ 6 millim.

*Hab.* Mexico, Ciudad in Durango (*Forrer*[1]); Panama, Veraguas (*Boucard*[2]).

An adult male and females, of which the male is identical with *C. ferum*, and the females with *C. debile*, were taken in Veraguas by Boucard, where the type of *C. debile* was also procured.

### 2. Chiracanthium keyserlingi.

*Chiracanthium keyserlingi*, Becker, Ann. Soc. Ent. Belg. xxi. p. 79, t. 2. figg. 11–14 (♂) (1878)[1].

*Hab.* Mexico, Guanajuato[1].

### 3. Chiracanthium inclusum.

*Clubiona inclusa*, Hentz, Spid. United States, p. 85, t. 10. fig. 18 (1875)[1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 225[2].

*Hab.* North America, Massachusetts[1], Carolina.—Mexico, Tepic[2].

## EUTICHURUS.

*Eutichurus*, E. Simon, Hist. Nat. Araign. éd. 2, ii. p. 88 (1897).

Type *E. ferox*, E. Sim. Venezuela and the Antilles.

Carapace without any central stria. Central anterior eyes not larger than the laterals, subequal. Apical segment of posterior pair of spinners very long, slender, and flexuose. Lower margin of fang-groove with 3, 4, or 5 subequal teeth situated near the base of the fang; upper margin with three small subequal teeth. Colulus absent.

We give figures of the structural details of a male of *E. ferox*. (See Tab. VI. figg. 13, 13 *a–c*.)

### 1. Eutichurus putus.

*Eutichurus putus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 237, t. 34. figg. 3, 3 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 13 millim.

*Hab.* Panama, Veraguas (*Boucard*[1]).

## STROTARCHUS.

*Strotarchus*, E. Simon, Ann. Soc. Ent. Fr. 1888, p. 210.

*Bedriacum*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 250 (1898).

Type of *Strotarchus*, *S. nebulosus*, E. Simon; of *Bedriacum*, *B. prædator*, O. P.-Cambr.: both from Mexico.

Carapace with the central stria distinctly marked. Central anterior eyes much larger than the laterals. Posterior pair of spinners with a cylindro-conical terminal segment almost as long as the basal segment.

Upper margin of the fang-groove with three subequal teeth, lower margin with two, but the number is not constant. Colulus absent.

The two species of which the males are known may be separated thus:—

*Males.*

A. Tarsus of palpus at least two and a half times longer than the tibia. Apex of bulb terminating in a short fork-like tongue, with two prongs; also with a long almost straight fine spine coming from behind the palpal organs at their apex and directed straight forwards, lying in the concavity of the tarsus. Tibial spurs shorter and blunter. *prædator*, O. P.-Cambr.

B. Tarsus of palpus scarcely twice the length of the tibia. Apex of bulb terminating in a sharply curved hook, its base springing from a bicuspidate chitinous plate. Tibial spur longer and sharper . . . *violaceus*, sp. n.

### 1. **Strotarchus nebulosus.** (Tab. VI. figg. 14, 14 *a–c*, ♀.)

*Strotarchus nebulosus*, E. Simon, Ann. Soc. Ent. Fr. 1888, p. 210 (♀)[1].

Type, ♀, in coll. E. Simon. Total length 13 millim.

*Hab.* Mexico, Presidio[1].

Our figures are taken from M. Simon's type.

### 2. **Strotarchus violaceus,** sp. n. (Tab. VI. figg. 15, 15 *a*, ♂; 16, ♀.)

Type ♂, and cotype ♀, in coll. Godman & Salvin. Total length, ♂, 9 millim.

♂ ♀. Carapace and sternum pale mahogany-brown, mouth-parts and mandibles darker, all with violet reflections. Legs pale orange-brown, with violet reflections. Abdomen ochreous-brown.

♂ ♀. Posterior row of eyes procurved, eyes subequal, two diameters apart; anterior row straight, centrals circular, larger than the laterals, three-fourths of a diameter apart, one-fourth of a diameter from the laterals. Clypeus just over one and a fourth diameters of an anterior central eye. Lower margin of fang-groove with two teeth, upper margin with three. Tibiæ i. and ii. with 2—2 spines beneath and a pair of lateral spines on each side. Protarsi i. and ii. with two spines beneath and a pair of lateral spines on each side. Patellæ without spines. Tibiæ and protarsi iii. and iv. numerously spined, the former without dorsal spines.

♂ palpus: tibia just over twice as long as broad, with a short sharp straight spur on the external apex. Tarsus scarcely twice as long as the tibia, deeply concave beneath, almost to the apex, containing the palpal organs: these consist of a globular bulb terminating in a sickle-shaped black spine; below its base lies a bicuspidate chitinous plate.

♀ vulva consisting of a large shallow semicircular cavity, its margins somewhat reflexed, rather narrower in front, emarginate behind, having in the anterior central portion of the cavity a black transverse spot.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 3. **Strotarchus prædator.** (Tab. VI. figg. 17, 17 *a*, ♂.)

*Bedriacum prædator*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 251, t. 33. figg. 7, 7 *a–f* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 10·25 millim.

*Hab.* Mexico, Orizaba (*H. H. Smith*[1]).

## CLUBIONA.

*Clubiona*, Latreille, Nouv. Dict. Hist. Nat. xxiv. p. 134 (1804).

*Elaver*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 238 (1898).

Type of *Clubiona*, *C. pallidula* (Clerck), Europe; that of *Elaver*, *E. tigrina*, O. P.-Cambr., Mexico.

Carapace with the central stria distinctly marked. Central anterior eyes not or scarcely larger than the laterals. Posterior pair of spinners with a very short (sometimes longer) conical terminal segment. Posterior row of eyes procurved, centrals more remote from each other than from the laterals. Upper margin of fang-groove with 3 or 4 teeth, one being much larger, lower margin with 3 or 4 unequal teeth: the number varies, often being different on the right and left falx in the same individual. Colulus absent, or marked by a group of hairs only. Anal tubercle very distinct.

The structural details of the type of the genus, *C. pallidula* (Clerck), are figured on Tab. VI. figg. 18, 18 *a–c* (♀).

*Males.*

A. Tibiæ i. and ii. with 2—2—2 spines beneath, the third pair apical and very small.
  i. Tibia of palpus more than four times longer than broad, with a short blunt spur at its base above. Tibial process tridendate; the basal tooth very large, uncate, the other two teeth much smaller. Bulb with a sharp spur at the base on the inner side . . . . . *tigrina*, O. P.-Cambr.
  ii. Tibia of palpus not more than three times longer than broad, without short basal spur above. Bulb without any sharp spur at the base on the inner side.
    a. Tibial spur very long, longer than the tibia itself, and deeply bifid at its apex . . . . . *crocota*, O. P.-Cambr.
    b. Tibial spur comparatively short, less than half the length of the tibia.
      1. Tibial spur very short, terminating in two sharp, stout, divergent spines . . . . . *depuncta*, O. P.-Cambr.
      2. Tibial spur longer, triangular, and more or less dentate.
        *a*. Tibial spur with three dentations; the apical one very long and sharp, the second shorter, the third very minute . . *tricuspis*, sp. n.
        *b*. Tibial spur with five dentations . . . . . *simplex*, O. P.-Cambr.

B. Tibiæ i. and ii. with 2—2 spines beneath; no apical pair. Tibia of palpus not longer than broad. Mandibles excavate on the inner margin . . . . . *excisa*, O. P.-Cambr.

*Females* *.

A. Abdomen with very distinct pattern: a central posterior dorsal row of triangular spots, with slender lateral branches, with oblique lateral bars, sometimes coalescent. Protarsi and tarsi i. and ii. dark brown.
  *a*. Central tongue of vulva short, broad, not narrowed at its base, scarcely reaching to the middle of the total length of the vulva . *tigrina*.

* The types of *C. mordica* and *C. placida*, O. P.-Cambr., are not sufficiently developed to enable me to tabulate their characters satisfactorily.

*b*. Central tongue of vulva longer, more slender, narrowed at its base, reaching beyond the middle of the total length of the vulva . . *depuncta*.

B. Abdomen with none, or scarcely any pattern.

*a*. Central tongue of vulva occupying almost the whole length of the vulva, very broad. Abdomen olive-green, with a faint central series of pale ⩘-shaped marks on the posterior dorsal line . . *linguata*, sp. n.

*b*. Central tongue of vulva very short and narrow, embedded in a dark protuberance on each side of it. Abdomen pale clay-yellow, with very faint indications of a pattern . . . . . *sericea*, O. P.-Cambr.

### 1. **Clubiona crocota.** (Tab. VI. fig. 19, ♂.)

*Clubiona crocota*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 168, t. 21. figg. 2, 2 *a–e* (♂), 3, 3 *a*, *b* (♀) [1].

Type, ♂ ♀, in coll. Godman & Salvin. Total length, ♂ 5·75, ♀ 7·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

### 2. **Clubiona simplex.** (Tab. VI. fig. 20, ♂.)

*Clubiona simplex*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 195 (♂) [1].

Type, ♂, in coll. Godman & Salvin. Total length 7·5 millim.

*Hab.* Guatemala, Yzabal (*Sarg* [1]).

### 3. **Clubiona tigrina.** (Tab. VI. figg. 21, 21 *a*, *b*, ♂; 22, ♀.)

*Elaver tigrina*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 238, t. 30. figg. 6, 6 *a–g* (♂), 7 (♀) [1].

Type, ♂, in coll. Godman & Salvin. Total length, ♂ 12–13·5, ♀ 13 millim.

*Hab.* Mexico, Orizaba (*H. H. Smith* [1]).

### 4. **Clubiona sericea.** (Tab. VI. fig. 23, ♀.)

*Elaver sericea*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 239, t. 30. figg. 11, 11 *a–e* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 13 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

### 5. **Clubiona depuncta.** (Tab. VI. figg. 24, 24 *a*, *b*, ♂; 25, ♀.)

*Elaver depuncta*, O.-P. Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 240, t. 30. figg. 10, 10 *a–d* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 13·5 millim.; ♂ & ♀ adult, 16 millim.

*Hab.* Mexico, Omilteme in Guerrero, Orizaba [1] (*H. H. Smith*), Jalapa (*M. Trujillo*).

This species was based upon a not fully mature specimen. Fully adult examples, however, both of the male and female, occur in our collection. In these the pattern on the abdomen is well marked, quite as pronounced as in *C. tigrina* and very similar. The male characters are given in the Table.

### 6. **Clubiona placida.**

*Elaver placida*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 240, t. 31. figg. 4, 4 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

### 7. **Clubiona tricuspis,** sp. n. (Tab. VI. figg. 26, 26 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 8·5 millim.

♂. Carapace, legs, sternum, and mouth-parts pale orange-yellow; mandibles darker. Abdomen dull ochre-yellow, with a darker chitinous scutum extending over the anterior two-thirds of the dorsal area; a few very indistinct dusky bars lie between the end of the scutum and the spinners.

Palpus: tibia about two and a half times longer than broad. Tibial spur with three dentations, the lower and apical one long, sharp, and curving upwards, the second much shorter, curving downwards, the third a very minute cusp. The bulb exhibits no sharp spur at its base.

*Hab.* Guatemala (*Sarg*).

### 8. **Clubiona linguata,** sp. n. (Tab. VI. fig. 27, ♀.)

Type, ♀, in coll. Gonman & Salvin. Total length 14 millim.

♀. Carapace, legs, sternum, and mouth-parts mahogany-brown; legs and sternum paler, the former not so dark at the extremities as in *C. tigrina*. Abdomen olive-green, mottled with pale yellow; anterior dorsal central area paler, posterior marked with a central series of four to six pale transverse ⩘-shaped bars, the first in the series broader, but not extending so far laterally. Ventral area pale yellow, mottled sparsely with olive-brown spots.

Vulva: the central chitinous tongue is very long and broad, more than two-thirds the whole length of the vulva. All the parts of the vulva, especially the tongue, are clothed with hairs, which are not shown in the figure.

*Hab.* Guatemala (*Sarg*).

A single female only was taken. Apart from the different form of the vulva, this spider has only a very slight pattern on the abdomen, very different from that of *C. tigrina*. For other characters, see the Table of species. The size of the central tongue, however, differs very much in individuals, and it is possible that this specimen is merely a variety of *C. tigrina*.

### 9. **Clubiona excisa.**

*Clubiona excisa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 245, t. 33. figg. 5, 5 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Mexico, Orizaba (*H. H. Smith* [1]).

### 10. **Clubiona mordica.**

*Clubiona mordica*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 274, t. 32. figg. 14, 14 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

*Hab.* Mexico, Omilteme (*H. H. Smith* [1]).

## LAURICIUS.

*Lauricius*, E. Simon, Ann. Soc. Ent. Fr. 1888, p. 208.

Type *L. hemiclæinus*, E. Simon. Mexico.

Carapace with central thoracic stria distinctly marked. Central anterior eyes not, or only slightly, larger than the laterals. Posterior row of eyes recurved, centrals nearer to each other than to the laterals. Lower margin of fang-groove with two teeth, upper with three. Posterior pair of spinners with a very short conical terminal segment. Colulus absent.

### 1. **Lauricius hemiclæinus.** (Tab. VII. figg. 1, 1 *a–g*, ♀.)

*Lauricius hemiclæinus*, E. Simon, Ann. Soc. Ent. Fr. 1888, p. 210 (♀)[1].

Type, ♀, in coll. E. Simon. Total length 18 millim.

*Hab.* Mexico, Ciudad in Durango (*Forrer*[1]), Omilteme in Guerrero (*H. H. Smith*).

## Subfam. *LIOCRANINÆ*.

The genera included in this subfamily may be distinguished from those of the Clubioninæ and Micariinæ by the presence beneath the tibiæ and protarsi of the first and second pairs of legs of a double series of more or less numerous long spines. The two genera *Chemmis* and *Heterochemmis* may be separated from *Liocranum* by the fact that the tarsi of all four pairs of legs are furnished with claw-tufts. They may be known from each other by the difference in size of the anterior central eyes and in the number and disposition of the spines on the tibiæ and protarsi of the legs.

The three genera represented in Central America may be tabulated thus:—

*a*. Posterior pair of spinners with a long terminal segment . . . . Syspira, Simon.
*b*. Posterior pair of spinners with a very short terminal segment.
  1. Eyes of anterior row equal . . . . . Heterochemmis, gen. nov.
  2. Central eyes of anterior row much larger than the laterals . . Chemmis, Simon.

## SYSPIRA.

*Syspira*, E. Simon, Bull. Soc. Zool. Fr. 1895, p. 135.

Type *S. tigrina*, E. Simon. Lower California.

### 1. **Syspira tigrina.**

*Syspira tigrina*, E. Simon, loc. cit. p. 135[1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 226[1].

*Hab.* Lower California[1 2].—Mexico, Mazatlan and Hermosillo[2].

## HETEROCHEMMIS, gen. nov.

For its characters, see the Table above.

### 1. Heterochemmis mirabilis.

*Liocranum mirabile*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 214, t. 26. figg. 8, 8 *a–f* (♂), 9, 9 *a* (♀) [1].

Type, ♂, in coll. Godman & Salvin.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith* [1]).

## CHEMMIS.

*Chemmis*, E. Simon, Hist. Nat. Araign. éd. 2, ii. p. 215 (June 1898).

*Menalippe*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 284 (Dec. 1898).

Type *Chemmis frederici*, E. Simon. Costa Rica.

Posterior row of eyes slightly procurved, eyes subequal; centrals slightly smaller, two diameters apart, a little less from the laterals. Anterior row procurved; centrals much larger than any of the others, less than half a diameter apart, a little less from laterals. Clypeus less than one diameter of an anterior central eye. Sternum scarcely longer than broad, smooth, clothed with fine hairs. Spinners six, anterior pair with very short terminal segment; posterior pair with a slightly longer terminal segment. Central pair as long as the anteriors, but much smaller. Colulus present. Stigmatic opening in front of the spinners marked by a conical chitinous cusp.

Femur of palpus (♀) with a row of bristles on the inner side beneath.

Tarsus of palpus (♀) clavate, with a pectinated terminal claw. Tarsi of all four pairs lightly scopulate beneath, also the apex of the protarsi. Tibiæ i. and ii. with 2—2—2—2—2 spines beneath, but no apical pair. Tibia ii. has only one spine, very small, representing the basal pair. Protarsi i. and ii. with 2—2 spines beneath and a simple small spine on the inner side about the middle.

Carapace elongate-oval, slightly narrowed in front. Mandibles stout, gibbous above, at base as in *Corinna*. Lower margin of fang-groove with two stout conical teeth, upper margin with three short conical unequal teeth. Labium broader than long, slightly dilate at the apex, fringed with long, stiff, convergent bristles. Maxillæ emarginate on the outer side, rounded on the outer apical, obliquely truncate on the inner apical margin, the latter fringed with a tuft of incurving hairs at the apex and a thick brush of short hairs below.

Tarsal claws two; claw-tuft present.

### 1. Chemmis frederici. (Tab. VII. fig. 2, ♀; Tab. VIII. figg. 1, 1 *a*, ♀.)

*Chemmis frederici*, E. Simon, loc. cit. p. 215 (♀) [1].

*Menalippe punctigera*, O. P.-Cambr. loc. cit. p. 284, t. 32. figg. 7, 7 *a–e* (♀) [2].

Type (♀) of *C. frederici* in coll. E. Simon, Paris; that (♀) of *M. punctigera* in coll. Godman & Salvin.

*Hab.* MEXICO, Omilteme in Guerrero, Teapa in Tabasco [2] (*H. H. Smith*); GUATEMALA (*Sarg*); COSTA RICA [1].

## Fam. ANYPHÆNIDÆ.

Characters as in the Clubionidæ, except that the tracheal stigmata are always more or less remote from the spinners, and the claw-tuft consists of a double series of lamelliform hairs.

The spiders comprised in this family live amongst the foliage of trees and bushes, spinning a more or less tubular retreat amongst the leaves in the same manner as do the members of the family Clubionidæ.

The various genera may be recognized as follows:—

A. Spiracular rima situated at, or before, the middle of the ventral area, which extends from the genital rima to the base of the spinners.

I. Maxillæ not more than twice longer than broad, almost parallel-sided, not conspicuously dilate at their apex. (Mandibles of male not developed, normal.)

*a*. Protarsi i. and ii. with one pair of spines only at the base beneath. Eyes of anterior row subequal . . . . . form, group 1). ANYPHÆNA, Sund. (typical

*b*. Protarsi i. and ii. with two pairs of spines beneath. Central anterior eyes distinctly smaller than the laterals . . . . ANYPHÆNA, Sund. (group 2).

II. Maxillæ at least three times longer than broad, emarginate on the outer side, distinctly dilate at the apex. Mandibles of male more or less developed.

i. Eyes of anterior row subequal, or centrals slightly larger.

*a*. Posterior row of eyes straight, or almost so. Legs i. longer than iv. Lower margin of fang-groove with 3–7 teeth . AYSHA, Keys.

*b*. Posterior row of eyes strongly procurved. Legs iv. longer than legs i. Lower margin of fang-groove with two teeth only . . . . . ARACHOSIA, O. P.-Cambr.

ii. Eyes of anterior row very unequal; centrals much smaller.

*aa*. Tibiæ i. and ii. with two to five pairs of spines beneath. Legs much shorter and stouter (except in *Wulfila*), the spines stouter and less numerous, and regularly paired.

i. Protarsi i. and ii. with one pair of spines only at the base beneath. Eyes more widely separate. Carapace more convex, broader in front. Lower margin of fang-groove with 4–5 stout teeth (♀). Males with very long mandibles . . . . . TEUDIS, O. P.-Cambr.

ii. Protarsi i. and ii. with two to three pairs of spines beneath. Eyes more closely grouped. Carapace compressed, especially in front. Lower margin of fang-groove with 10–13 minute teeth (♀).

*a*. Protarsi i. and ii. with two pairs of spines beneath. Legs much stouter and spines stouter. Tibiæ i. and ii. with two pairs of spines beneath . . . . SILLUS, gen. nov.

*b*. Protarsi i. and ii. with three pairs of spines beneath. Legs much more slender and spines more slender. Tibiæ i. and ii. with three pairs of spines beneath . WULFILA, O. P.-Cambr.

*bb*. Tibiæ i. and ii. with 16–20 very long spines, irregularly situated, not regularly paired. Legs much longer and more slender.

1. Protarsi i. and ii. with 10–16 long, slender spines beneath. Terminal segment of posterior pair of spinners less than half as long as the basal segment. Maxillæ shorter and more parallel-sided, not distinctly dilate at the apex . . . . . CRAGUS, O. P.-Cambr.

2. Protarsi i. and ii. with a few long basal spines only. Terminal segment of posterior spinners nearly as long as the basal segments. Maxillæ emarginate on the outer side, dilate at the apex . . . . . MACROPHYES, O. P.-Cambr.

B. Spiracular rima situated behind the middle of the ventral area of the abdomen, towards the spinners.

i. Posterior row of eyes procurved; anterior row in a straight line. GAYENNA, Nic.

ii. Posterior row of eyes recurved; anterior row slightly procurved. PELAYO, O. P.-Cambr.

## ANYPHÆNA.

*Aæna,* Sundevall, Consp. Arachn. p. 20 (1833).

Type *A. accentuata*, Walck. Europe.

*Anyphæna* can be distinguished from other closely allied genera, such as *Aysha* and *Arachosia*, by the shorter, more parallel-sided maxillæ, and the straight posterior row of eyes. The spiracular rima is situated in the middle, or just before the middle, of the ventral area. The central anterior eyes are only slightly smaller than the laterals. The typical form, *A. accentuata*, Sund., has one pair of spines beneath the base of the anterior protarsi, while all those from Central America have two pairs of spines.

The species are very numerous, and the males of many of them are remarkable for the conical protuberances on the coxæ of one or more pairs of legs.

The Central-American forms known to me may be recognized by the following characters:—

### *Males.*

A. Coxæ of one or more pairs of legs produced into a more or less conical prominence.

i. Coxæ of the first two pairs of legs only produced into a conical, dentigerous prominence, that of the first pair being the largest . *simplex,* O. P.-Cambr.

ii. Coxæ of third or fourth pairs produced into a conical prominence.

*a.* Coxæ of the second or third pairs, besides those of the fourth pair, of legs bearing prominences.

1. Coxæ of ii., iii., and iv. with prominences, that on i. being at the anterior apical angle; that on ii. in the same position, with a second elongate, curved appendage behind the first; that on iii. at about the middle of the base . . . . . *tuberosa,* sp. n.

2. Coxæ of iii. and iv. with stout curved processes springing from their base. Base of tarsus of palpus produced into a large conical spur above . . . . . *proba,* O. P.-Cambr.

*b.* Coxæ of third pair only with a conical prominence towards its base.

i. Tibial apophysis not divided into two branches.

1*. Tibial apophysis broad, not curved at its base, bearing on the upper margin, about the middle, a short, sharp, triangular spur . . . . . *gibba,* O. P.-Cambr.

2*. Tibial apophysis curved strongly upward and outward at the base, without any spur on the upper margin . . . *gibbosa*, O. P.-Cambr.

ii. Tibial apophysis divided into two branches.

1. Upper branch of tibia of palpus strongly curved, falciform, sharp at its apex. Lower branch sinuous, terminating in a bilobate lamelliform structure . . . . . *subgibba*, O. P.-Cambr.

2. Upper branch of tibia of palpus short, lamelliform, bifid at the apex, formed like a fish-tail. Lower branch broad, straight, not pointed at the apex . . . . . *judicata*, O. P.-Cambr.

B. Coxæ of all four pairs of legs plain, without spurs or conical prominences.

I. Coxæ plain, without short black spines.

*a*. Tibia of palpus with a long, broad, curved basal spur on the outer side, besides the usual apical spur . . . . . *stylifer*, sp. n.

*b*. Tibia with, sometimes, a prominence beneath, but without the long basal spur.

1. Tibia of palpus scarcely longer than broad (including the prominence), with a broad subconical prominence beneath. Apical spur of tibia without a cluster of bristles at the base on the outer side. Palpal organs with a stout, sinuous black spine at their apex . . . . . *plana*, O. P.-Cambr.

2. Tibia of palpus three times longer than broad, without any large prominence beneath, but with a short blunt spur about the middle of the outer side. Apex of tibia with a bifid spur, having at its base, partially concealing it, a cluster of bristles. Palpal organs without any sinuous spines at their apex . . . . . *scopulata*, sp. n.

II. Coxæ i., ii., iii., and the trochanter of the palpus set with numerous short, stout, black spines. Tibial spur divided into three branches, forming a broad concave apophysis viewed from above. *trifida*, sp. n.

Note.—The females are too few in number to tabulate, and can be best recognized by the form of the vulva.

## 1. **Anyphæna larvata.**

*Anyphæna larvata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 199, t. 26. figg. 3, 3 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

## 2. **Anyphæna proba.** (Tab. VII. figg. 3, 3 *a*, ♂.)

*Anyphæna proba*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 200, t. 26. figg. 5, 5 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 5·5 millim.

*Hab.* Mexico, Atoyac in Vera Cruz (*H. H. Smith*[1]).

3. **Anyphæna gibba.** (Tab. VII. figg. 4, 4 *a–c*, ♂; 5, ♀.)

*Anyphæna gibba*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 201, t. 26. figg. 7, 7 *a–e* (♂)[1].

*Anyphæna gibbosa*, O. P.-Cambr. loc. cit. p. 202, t. 25. figg. 10, 10 *a* (♀) (nec ♂)[2].

Type, ♂, *A. gibba*, and ♀, *A. gibbosa*, in coll. Godman & Salvin. Total length, ♂ 5–6·8, ♀ 7 millim.

*Hab.* Mexico, Omilteme[1] and Amula[2] in Guerrero 6000 to 8000 feet (*H. H. Smith*).

4. **Anyphæna gibbosa.** (Tab. VII. figg. 6, ♂; 7, ♀.)

*Anyphæna gibbosa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 202, t. 25. figg. 9, 9 *a–e* (♂) (nec ♀)[1].

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*[1]).

5. **Anyphæna subgibba.** (Tab. VII. fig. 8, ♂.)

*Anyphæna subgibba*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 202, t. 25. figg. 8, 8 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 4·25 millim.

*Hab.* Guatemala, between Petet and Chicoyoito (*Sarg*[1]).

6. **Anyphæna judicata.** (Tab. VII. fig. 9, ♂.)

*Anyphæna judicata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 203, t. 26. figg. 4, 4 *a e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 4·25 millim.

*Hab.* Mexico, Omilteme in Guerrero 8000 feet (*H. H. Smith*[1]).

7. **Anyphæna excepta.** (Tab. VII. fig. 10, ♀.)

*Anyphæna excepta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 203, t. 25. figg. 7, 7 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Guatemala, Coban (*Sarg*[1]).

8. **Anyphæna simplex.** (Tab. VII. figg. 11, 11 *a*, *b*, ♂; 12, ♀.)

*Anyphæna simplex*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. 124, 203, t. 18. figg. 2, 2 *a–d* (♂), 3, 3 *a* (♀)[1].

*Anyphæna clubionoides*, O. P.-Cambr. loc. cit. p. 184, t. 23. figg. 1, 1 *a–d* (♂), 2, 2 *a* (♀)[2].

Type ♂, cotype ♀, *A. simplex*, and, ♂ ♀, *A. clubionoides*, in coll. Godman & Salvin. Total length, ♂ 7, ♀ 9 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*[1 2]).

### 9. **Anyphæna stylifer,** sp. n. (Tab. VII. figg. 13, 13 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6·5 millim.

♂. General characters similar to those of others of the genus. The tibia of the palpus bears at its base on the outer upperside a broad curved apophysis, its apex slightly dilate, directed forwards. The apex of the segment bears also on the outer side another shorter, sharper, dark-coloured process, its apex sharp and directed forwards over the base of the tarsus. The segment is slightly concave on the outer side between the two processes. The palpal organs consist of two semidiaphanous lobes; from the underside of the posterior one there springs from the base a long process, stout and strongly curved at the base, having a small curved lamina of chitin on the inner side and a triangular lamina with finely serrate edge on the outer side, gradually attenuate and terminating at its apex in a long filiform spine, its point almost reaching the apex of the tarsus; the same lobe bears also on the outer side towards the apex a short, sinuous stylum, hooked at the tip. The trochanter of the palpus is not spinose. The coxæ of the legs bear no spines, tubercles, nor processes of any kind. Upper margin of the fang-groove with four, lower margin with three small teeth.

*Hab.* PANAMA, Bugaba (*Champion*).

A single adult male only of this very distinct species was taken. The structure of the palpi and their organs furnishes the best distinctive characters.

### 10. **Anyphæna trifida,** sp. n. (Tab. VII. figg. 14, 14 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5·5 millim.

♂. Coxæ of the first three pairs of legs, as well as the trochanter of the palpus, set with numerous short, black stout spines. Coxa iii. decidedly gibbous towards the apex beneath, but not produced to form a definite conical prominence, the spines longer than those on coxæ i. and ii.

The tibia of the palpus is produced towards the base beneath into a conical process; at its apex, on the outer side, it bears a large process divided into three branches, the posterior one curved forwards and slightly hooked at its apex: the superior of the two anterior branches is the shorter, and consists of a simple, straight, chitinous lamina; the inferior is longer, broader, curving downwards, and takes the form of a concave, bilobate plate at its apex.

*Hab.* GUATEMALA (*Sarg*).

### 11. **Anyphæna plana,** sp. n. (Tab. VII. figg. 15, 15 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

♂. Coxæ of the third pair of legs alone protuberant and only very slightly clothed with hairs, as also are those of the fourth pair. Tibia of palpus with a strong conical protuberance at its base beneath, bearing on its outer side at the apex a broad, sinuously curving, cylindrical apophysis, with a sharp triangular spur at its base on the upperside, the upper edge of the spur being itself serrate. Between this spur and the apex of the apophysis on its upper margin are four minute serrations; the apex itself is slightly bilobate and cylindrical. The palpal organs differ also considerably from those of *A. gibba,* though in these two species they show a great general resemblance; the apical apophysis is not bifid, but bears a triangular spur on the outer side at about the middle.

*Hab.* PANAMA, Bugaba (*Champion*).

### 12. **Anyphæna tuberosa,** sp. n. (Tab. VII. figg. 16, 16 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

♂. The coxæ of the first pair of legs have no protuberances; those of the second pair have a strong

protuberance at the anterior apical angle; those of the third pair a small protuberance at the anterior apical angle, with a long slender chitinous process rising just behind it; those of the fourth pair have a small protuberance about the middle towards the base.

The tibia of the palpus bears a small projection on the underside near its base, and a broad trifid apophysis inclining towards the outer side of the segment at its apex. The lower branch of this apophysis is broad, concave, and rounded at its apex; the central and upper branches narrower and acutely pointed. The palpal organs consist of two lobes, the basal one being produced at its apex into a stout strongly curved spur, with a small projection on the inner side near the apex. The other lobe occupies a position within the curve of the above-mentioned spur and bears two long, curved, spiniform appendages directed towards the base of the apical spurs.

*Hab.* GUATEMALA (*Sarg*).

### 13. **Anyphæna scopulata,** sp. n. (Tab. VII. figg. 17, 17 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

The colours have faded from the single specimen found in our collection.

Coxæ of all four pairs of legs plane, having no processes or conical tubercles. Tibia of the palpus three times longer than broad, having, in the middle of the outer side beneath, a very short blunt spur, and at its apex a large bifid spur, the outer branch larger, sharp, curving upwards and slightly inwards. At the base of this spur springs a thick tuft of stiff bristles curving upwards and forwards. The palpal organs have not the usual sinuous spine at their apex.

*Hab.* GUATEMALA (*Sarg*).

### 14. **Anyphæna oblonga.**

*Anyphæna oblonga,* Keys. Verh. zool.-bot. Ges. Wien, xxvii. p. 605, fig. 24 (1878) [1].

*Hab.* MEXICO, Vera Cruz [1].

I have not seen a specimen of this or the following species.

### 15. **Anyphæna simoni.**

*Anyphæna simoni,* Becker, Ann. Soc. Ent. Belg. 1878, p. 79, t. 2. fig. 7 [1].

*Hab.* MEXICO [1].

## AYSHA.

*Aysha,* Keyserling, Bras. Spinn. p. 129 (1891).

Type *A. prospera*, Keys. Rio Grande, S. America.

This genus resembles *Anyphæna*, but differs in having the spiracular rima nearer to the genital rima, and the maxillæ much longer, emarginate on the outer sides, and dilate at their apex. The posterior row of eyes is straight, or almost so, and the first pair of legs are longer than the fourth. The lower margin of the fang-groove bears five or six small teeth.

*Males.*

A. Tibia of palpus four times longer than broad. Tibial spur narrow, sinuous, not more than half the length of the tibia, its apex directed

downwards, and abruptly curved at its extreme end. Tarsus more slender, not gibbous above. Size larger, length 9 millim. . . . . *simplex*, O. P.-Cambr.

B. Tibia of palpus scarcely more than twice as long as broad. Tibial spur broad, sinuous, as long as the tibia itself, its apex directed downwards and outwards. Tarsus broad and stout, gibbous above. Size smaller, length 6 millim. . . . . *minuta*, sp. n.

*Females.*

A. Vulva consisting of an oval cavity with a minute orifice at the anterior portion.
  *a*. Size larger, length 12·5 millim. The two posterior oviducts lying in contact . *simplex*.
  *b*. Size smaller, length 7 millim. The two posterior oviducts separate, with an interspace . . . . . *minuta*.

B. Vulva consisting of a cavity whose anterior portion is covered by a semicircular valve-like chitinous plate . . . . . *valvula*, sp. n.

## 1. **Aysha simplex.**

*Aysha simplex*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 227, t. 29. figg. 4, 4 *a–f* (♂), 5, 5 *a* (♀)[1].

Type ♂, cotype ♀, in coll. Godman & Salvin. Total length, ♂ 9, ♀ 12·5 millim.

*Hab.* Panama, Veraguas (*Boucard*[1]).

## 2. **Aysha minuta,** sp. n. (Tab. VII. figg. 18, ♂; 19, ♀.)

Type, ♂, in coll. Godman & Salvin. Total length, ♂ 6, ♀ 7 millim.

♂ ♀. Entirely dull yellow-white. General structure as in other members of the genus.

♂. Palpus: tibia, including the spur, longer than the tarsus; tibial spur, upper branch, long, sinuous, stout, curving downwards and outwards at the apex. Near the base of the upper spur there is a smaller spur on the outer side of the segment. The bulb is short and broad, terminating at its apex in a long spiraloid spine. The tarsus is short and gibbous in the dorsal region.

♀. Vulva very simple, consisting of an oval space enclosed within a dark brown chitinous margin, open in front and behind. In the anterior middle of the area is a minute orifice.

*Hab.* Guatemala (*Sarg*).

The form of the vulva of this species is exceedingly similar to that of *A. simplex*, but the larger size of the latter will be noticeable.

## 3. **Aysha valvula,** sp. n. (Tab. VII. fig. 20, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6·5 millim.

Colour entirely dull yellow-white. Structure as in others of the genus. Vulva with a broad semicircular valve-like chitinous plate at its anterior margin, open behind, covering a small cavity.

*Hab.* Panama, Bugaba (*Champion*).

## ARACHOSIA.

*Arachosia*, O. P.-Cambridge, P. Z. S. 1882, p. 425.

Type *A. anyphœnoides*, O. P.-Cambr. Amazons.

The posterior legs in this genus are longer than the anterior; the posterior row of eyes is strongly procurved; the lower margin of the fang-groove has only two teeth; and the spiracular rima is situated at or just behind the middle of the ventral area.

### 1. Arachosia puta.

*Arachosia puta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 100, t. 13. figg. 10, 10 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 11·25 millim.

*Hab.* Panama, Volcan de Chiriqui (*Champion*[1]).

## TEUDIS.

*Teudis*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 198 (Oct. 1896).

*Isigonia*, E. Simon, Ann. Soc. Ent. Fr. 1897, p. 507.

*Delozeugma*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 182 (ad partem).

*Memnon*, O. P.-Cambridge, loc. cit. p. 283 (Dec. 1898).

Type of *Teudis*, *T. gentilis*, O. P.-Cambr., Guatemala; of *Isigonia*, *I. limbata*, E. Sim., Pará; of *Memnon*, *M. peragrans*, O. P.-Cambr., Guatemala.

Carapace more convex, and in the female broad in front. Posterior row of eyes straight or slightly recurved or procurved, subequal, equidistant, nearly one and a half diameters apart; anterior row straight, centrals much smaller, closer, half a diameter apart, a full diameter from the laterals. (In the male sex the eyes are more closely grouped and the mandibles very much developed.) Maxillæ nearly three times longer than broad, enlarged at the apex. Protarsi i. and ii. with one pair of long spines at the base beneath; tibiæ i. and ii. with three pairs, one being apical. (In the male there is often a single additional protarsal spine towards the apex.) Lower margin of the fang-groove of female with 4–5 small stout teeth, the three anterior ones larger; upper margin with 4 teeth. Lower margin of the mandible of the male with 3 or more small teeth, upper margin with 3 or 4. Sternum produced into a short conical point behind. Spiracular rima situated usually in front of the middle, at from one-fourth of the distance between the genital rima and the base of the spinners to very near the middle.

To the genera *Teudis* and *Sillus* belong the greater part of the species from Brazil referred by Keyserling to *Anyphæna*. I have not seen the type of *Isigonia*, but a specimen of *Memnon peragrans*, O. P.-Cambr., from the Lower Amazons, agrees with Simon's characterization of that genus. This author is, however, quite wrong in referring *Pelayo*, O. P.-Cambr., to *Isigonia* (Hist. Nat. Araign. éd. 2, ii. p. 207), since the spiracular rima in the latter is situated close to the spinners.

*Males.*

A. Tibia of palpus with a basal spur in addition to the apical one.
  *a*. Basal spur long and bifid at the apex, not studded with cuspules . *peragrans*, O. P.-Cambr.
  *b*. Basal spur shorter, divided into two branches, the outermost of which is studded with cuspules . . . . . *gentilis*, O. P.-Cambr.
B. Tibia of palpus with an apical spur only . . . . . *mordax*, O. P.-Cambr.

*Females.*

A. Carapace with a dorsal latero-median brown band on each side. Abdomen with a broad, brown, mottled band over the whole dorsal area, from anterior margin to spinners. Ventral area with a broad central longitudinal brown band involving the labium, centre of sternum, and abdomen. Posterior margin of vulva deeply cleft in the centre . . . . . *peragrans*.

B. Body and legs almost unicolorous orange-yellow.

*a*. Vulva larger and more conspicuous, the pair of spermathecæ not apparent. (See Tab. VII. fig. 23.) . . . . . *ruber*, sp. n.

*b*. Vulva less conspicuous, smaller, with a pair of piriform spermathecæ distinctly marked at the anterior portion of the vulva. (See Tab. VII. fig. 24.) . . . . . *roseus*, sp. n.

## 1. **Teudis peragrans.** (Tab. VII. figg. 21, 21 *a*, ♂ ; 22, ♀ .)

*Memnon peragrans*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 283, t. 32. figg. 6, 6 *a–e* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

♂. Total length 8 millim., exclusive of mandibles. Colour similar to that of the female. Mandibles very long, with a single minute tooth and a short black carina about halfway along the inner margin of the base of the mandible. The fang-groove is absent and there are no other teeth.

Palpus: tibia scarcely longer than the patella, with two apophyses on the outer side: the lower one springing from near the base is directed upwards and outwards, and is bifid at its apex, the inner branch being longest; the upper apophysis is short, black, strongly uncate and sharp-pointed. Tarsus very broad, rather gibbous above. Bulb with an immense curved spine running from the outer side encircling the organs, and terminating in a fine point with the apex of the sheath. At the apex of the bulb there is an elongate pale chitinous lamella directed forwards, and adjacent to it a short sharp black spur.

♀. The vulva appears as two small flat chitinous lobes.

*Hab.* Guatemala[1] (*Sarg*: ♂ ♀).—Lower Amazons, Santarem (*F. O. P.-C.*).

The adult male is here described for the first time.

## 2. **Teudis gentilis.**

*Teudis gentilis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 199, t. 25. figg. 6, 6 *a–f* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

*Hab.* Guatemala, Coban (*Sarg*[1]).

## 3. **Teudis mordax.**

*Delozeugma mordax*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 182, t. 22. figg. 11, 11 *a–i* (♂)[1].

*Teudis mordax*, O. P.-Cambr. loc. cit. p. 199[2].

Type, ♂, in coll. Godman & Salvin. Total length 5·5 millim.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*[1]).

### 4. **Teudis ruber,** sp. n. (Tab. VII. fig. 23, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8·5 millim.

Colour entirely orange-yellow, abdomen paler (the tints have probably faded).

Posterior row of eyes straight; eyes subequal, almost equidistant, one diameter apart. Anterior row straight; centrals very small, less than half a diameter apart, the same distance from the laterals. Inferior margin of the fang-groove with four stout teeth. Tibiæ i. and ii. with 2—2—2 spines beneath, one pair apical, and three lateral spines on each side. Protarsi i. and ii. with one pair of long spines at the base and one lateral basal spine. Tarsi and protarsi i. and ii. thickly clothed with scopuliform hairs. Patellæ i. and ii. with two bristles. For a figure of the vulva, see Tab. VII. fig. 23.

*Hab.* Guatemala (*Sarg*).

### 5. **Teudis roseus,** sp. n. (Tab. VII. fig. 24, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 10–11 millim.

Colour entirely pale orange-yellow, abdomen paler, mandibles darker (the tints have probably faded).

Posterior row of eyes almost straight; eyes subequal, almost equidistant (centrals further apart), one diameter apart. Anterior row straight; centrals much smaller, one-half a diameter apart, one diameter from the laterals. Mandibles 5–6 stout teeth on the inferior margin of the fang-groove. Spinulation of the legs as in *T. ruber*. For a figure of the vulva, see Tab. VII. fig. 24.

*Hab.* Panama, Bugaba (*Champion*).

## SILLUS, gen. nov.

Type, ♀, *Sillus putus* (O. P.-Cambr.). Costa Rica.

Very similar in general structure to *Teudis*, but the carapace is more compressed, especially in front, while the caput is narrower and the eyes more closely grouped. The protarsi i. and ii. have two pairs of spines beneath, the tibiæ also two pairs; no apical pair. It differs from *Anyphæna* in the very much smaller central anterior eyes. The upper margin of the fang-groove bears 4 stout teeth, the lower 13 or 14 very minute ones (♀).

It is quite possible that several genera belonging to this group which are here held separate will eventually fall together.

*Males.*

A. Mandibles gibbous at the base beneath, furnished with two stout teeth in the middle of the basal segment beneath. Tibia of palpus nearly twice as long as the patella, distinctly longer than the tarsus, narrowed towards its base. Spine at the apex of the bulb short, stout, curved, but not sinuous . . . . . *attiguus*, O. P.-Cambr.

B. Mandibles not gibbous at the base beneath, nor furnished with teeth in the middle. Tibia of palpus only one and a half times, or less, longer than the patella, shorter than the tarsus.

*a*. Tibial spur stouter, concave, bifid or with a sharp curved spine. Spine at the apex of the bulb straight or slightly sinuous.

1. Tibial spur bifid at the apex, concave beneath. Tibia one-third longer than the patella. Terminal spine terminating in a long straight point, directed forwards . . . . . *longispina*, sp. n.

2. Tibial spur very much broader, with a sharp small hook on the upper margin. Tibia about one-fourth longer than the patella. Terminal spine sinuous, directed forwards, but more or less across the palpal organs . . . . . *curvispina*, sp. n.

*b*. Tibial spur short, slender, sharp-pointed. Terminal spine making a circular sweep round the apex of the bulb and then directed sinuously forwards . . . . . *placens*, O. P.-Cambr.

*Females.*

The two species recorded of which the females are known can be best separated by comparing the figures of the vulva.

### 1. **Sillus putus.**

*Anyphæna puta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 200, t. 26. figg. 2, 2 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 13–14·5 millim.

*Hab.* Costa Rica (*Sarg* [1]).

### 2. **Sillus attiguus.** (Tab. VII. figg. 27, 27 *a*, ♂.)

*Clubiona attigua*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 169, t. 21. figg. 1, 1 *a–e* (♂) [1].

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

♂. Colour as in *S. curvispina*. Structure also similar, except in the palpus and mandibles.

Palpus: tibia nearly twice as long as the patella, distinctly longer than the tarsus, narrowed towards its base Tibial apophysis directed outwards and downwards, concave beneath, terminating in a minute curved point, but not a sharp spine (see figures). Mandibles enlarged, gibbous at the base beneath, bearing three small teeth on the lower margin of the fang-groove, and three (one single, one double tooth) on the anterior margin of the basal protuberance. The spine at the apex of the bulb is short, stout, strongly curved, but not sinuous.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]); Guatemala (*Sarg*).

### 3. **Sillus lunula,** sp. n. (Tab. VII. fig. 25, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

♀. Colour very similar to that usual amongst Anyphænine forms. Legs, carapace, mandibles, and sternum pale orange-yellow. The carapace bears two brown bands on each side of the central line. The abdomen is dull yellow-white, with a brown speckled dorsal band, resolving itself into the usual series of oblique accent-like spots from the centre to the spinners. The tibiæ and protarsi of legs iii. and iv. are annulated with dark brown at the apex.

Posterior row of eyes straight, subequal; centrals slightly further apart, less than a diameter from each other, less than half from the laterals. Anterior row straight, centrals much smaller. Eyes equidistant, almost in contact. Maxillæ more or less parallel-sided, scarcely more than twice longer than broad. Tibiæ i. and ii. with 2—2 spines beneath, no apical pair; 3 lateral spines and 2 dorsal. Protarsi i. and ii. with 2—2 spines beneath and 3 lateral spines. Patellæ i., ii., iii., iv. with a single slender apical and basal bristle. Scopula beneath protarsi and tarsi i. and ii. very slight.

The vulva consists of a pair of stout chitinous spurs, connected in the form of a half-moon, at the anterior margin of the epigynal area, their points directed backwards.

*Hab.* Guatemala (*Sarg*).

### 4. **Sillus curvispina,** sp. n. (Tab. VII. figg. 26, 26 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

♂. Colour entirely pale orange-yellow, mandibles and anterior margin of carapace darker, abdomen paler. Posterior row of eyes straight. Eyes equal, equidistant, almost one diameter apart. Anterior row straight; centrals much smaller, almost in contact, half a diameter from the laterals. Tibiæ i. and ii. with 2—2 spines beneath, besides lateral spines; protarsi i. and ii. with 2—2 spines beneath, besides lateral spines. Mandibles enlarged, not gibbous at the base beneath; lower margin of fang-groove with three or four teeth and a slight rugulosity on the outer side, upper margin with three stout teeth, far removed from the base of the mandible.

Palpus: tibia one-third longer than the patella, distinctly shorter than the tarsus. Tibial apophysis broad, concave in front, with a minute, curved, sharp spine directed forwards. The spine at the apex of the organs is more decidedly sinuous than in the species *S. attiguus* and *S. longispina*.

*Hab.* Panama, Bugaba (*Champion*).

### 5. **Sillus longispina,** sp. n. (Tab. VII. fig. 28, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4 millim.

Colour as in *S. curvispina*. Structure similar, except in the palpus and mandibles.

Palpus: tibia one-third longer than the patella, shorter than the tarsus. The tibial apophysis is concave beneath and bilobate on the outer side; the spine at the apex of the bulb is long and straight, not curved or sinuous, directed obliquely across the apex of the tarsus beneath. Mandibles enlarged, not gibbous at the base beneath. Lower margin of fang-groove with five small teeth, upper with four larger ones.

*Hab.* Guatemala (*Sarg*).

### 6. **Sillus placens.**

*Clubiona placens,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 195 (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* Panama (*Sarg* [1]).

## WULFILA.

*Wulfila,* O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 158 (1895).

Type *W. pallidus*, O. P.-Cambr. Mexico.

In this genus the central anterior eyes are much smaller than the laterals, and the spiracular rima is situated approximately in the middle of the ventral area, or slightly before it. It differs from *Teudis* and *Sillus* in its much more slender legs, and in the presence of three pairs of spines beneath the anterior protarsi; and from *Cragus* and *Macrophyes* in the fact that the spines on the legs of the latter are longer, more numerous, and not in pairs; otherwise *Wulfila* is very closely allied to these last-mentioned genera. The chitinous covering of the lung-sacs is strongly developed, protuberant.

The characters of the females of this genus do not admit of tabulation, specimens of this sex being separable only by the form of the vulva.

### 1. **Wulfila pallidus.**

*Wulfila pallidus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 159, t. 19. figg. 11, 11 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 4·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

### 2. **Wulfila proximus.**

*Wulfila proximus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 150, t. 19. figg. 18, 18 *a–b* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 4·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

### 3. **Wulfila diversus.**

*Wulfila diversus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 159, t. 19. figg. 10, 10 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

### 4. **Wulfila spatulatus,** sp. n. (Tab. VII. figg. 29, 29 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

Colour entirely dull yellow-white. Structure similar to that of other members of the genus.

Palpus: tibia at least three times as long as broad, with a stout, broad apophysis, as long as the segment itself, issuing from the base on the outer side; its apex is broad, concave, lamelliform, triangular. Tarsus and bulb very large, gibbous at the base above.

*Hab.* Guatemala (*Sarg*).

It is quite possible that this is the male of *W. diversus*, but, the locality not being the same, it is equally possible that it belongs to a different species.

## CRAGUS.

*Cragus*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 215 (1896).

Type *C. pallidus*, O. P.-Cambr. Mexico.

This genus differs from the other Anyphæninæ, except *Macrophyes*, in having the tibiæ and protarsi furnished with numerous very long and slender spines. The maxillæ are short and parallel-sided, while the legs are long and slender. There is no very great difference between *Cragus* and *Macrophyes*, except in the number of spines beneath the protarsi i. and ii. and the smaller size of the terminal segment of the posterior pair of spinners. Anterior central eyes very small.

The males of the two species can be recognized by the following distinctive characters:—

A. Apex of tibial spur bifid. Coxæ iii. and iv. each with a pair of very small tubercles, one on each side of the segment . . . . . *pallidus*, O. P.-Cambr.

B. Apex of tibial spur obtusely pointed, not bifid. Coxa iv. without tubercles. Coxæ ii. and iii. each with a pair of long curved spurs, their points cuspulate and directed towards each other in the form of a forceps . . . . . *inornatus*, O. P.-Cambr.

### 1. Cragus pallidus.

*Cragus pallidus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 215, t. 26. figg. 10, 10 *a–f* (♂) [1].

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Guatemala, Santa Ana (*Sarg* [1]).

### 2. Cragus inornatus. (Tab. VII. figg. 30, ♂; 31, ♀.)

*Cragus inornatus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 240, t. 33. figg. 9, 9 *a–f* (♂) [1].

Type, ♂, in coll. Godman & Salvin. Total length 4·75 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

## MACROPHYES.

*Macrophyes*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 106 (1893); E. Simon, Hist. Nat. Araign. éd. 2, ii. p. 87.

Type *M. attenuata*, O. P.-Cambr. Mexico.

Differs from all other genera of the subfamily, except *Cragus*, by the long slender legs and the numerous long slender spines attached to them. The anterior central eyes are exceedingly minute. The spiracular rima is situated in the middle of the ventral area.

This genus is based upon a single adult male.

### 1. Macrophyes attenuata. (Tab. VII. figg. 32, 32 *a–f*, ♂.)

*Macrophyes attenuata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 106, t. 14. figg. 8, 8 *a–d* (♂) [1].

Type, ♂, in coll. Godman & Salvin. Total length 9 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

## GAYENNA.

*Gayenna,* Nicolet, in Gay's Hist. fis. y polit. de Chile, Zool. iii. p. 450 (1849).

Type *G. americana*, Nicolet. Chili.

I do not know this genus; but according to M. Simon the spiracular rima is situated towards the spinners, and the anterior row of eyes is straight. Two species from Mexico have been referred to it by Mr. N. Banks.

### 1. Gayenna orizaba.

*Gayenna orizaba,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 223, t. 13. fig. 37[1].

*Hab.* Mexico, Orizaba (*Banks* [1]).

### 2. Gayenna minuta.

*Gayenna minuta,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 224, t. 13. fig. 32[1].

*Hab.* Mexico, Tepic (*Banks* [1]).

## PELAYO.

*Pelayo,* O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 194 (1896).

ype *P. lætus*, O. P.-Cambr. Costa Rica.

Differs from *Gayenna* (see Simon's characterization of this genus) in the recurved posterior row of eyes.

### 1. Pelayo lætus.

*Pelayo lætus,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 194, t. 24. figg. 7, 7 *a–f* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 4·25 millim.

*Hab.* Costa Rica (*Sarg* [1]).

## Fam. CTENIDÆ.

Eyes eight, situated in three or four transverse rows of 2, 4, 2 or 2, 2, 2, 2 or 4, 2, 2. Other characters similar to those of the Clubionidæ. Legs normal.

The Ctenidæ are represented in Central America and other tropical regions by numerous genera and a very large number of species, all of which are characterized by an eye-formula quite peculiar to them amongst two-clawed forms, though it crops up again amongst the two-clawed cribellate and amongst the three-clawed forms. Except with respect to their eye-formula, they are simply Clubionids. The species included in the family under the generic name *Ctenus* embrace a large number of forms varying considerably in size and coloration. The giants of tropical America and Africa measure as much as three inches in expanse of leg, while numbers of comparatively minute forms are found in both the western and eastern tropical regions. There seem to be no

particular groups of forms differing in shape, colour, and structure, assignable to any well-defined continents or regions.

The species apparently peculiar to the East—Ceylon, Sumatra, Java, Borneo, &c., since the giant forms are absent in these regions—are represented by closely allied forms both in South Africa and in tropical America.

They inhabit the tract of country which lies within latitude 40° north and south of the Equator, though doubtless, under favourable conditions, species stray further, both north and south. In their habits they are apparently vagrant, wandering about over the foliage in the forest at night, somewhat as do the European Clubionids. The males seem to be met with less frequently than the females, and the egg-sac is attached to the underside of a stone or piece of bark and not carried about as in *Lycoctenus* and *Cupiennius*. No web is constructed, so far as I am aware, though possibly leaves may sometimes be woven together to form a retreat.

Representatives of only two genera have hitherto occurred in Central America, which may be recognized as follows:—

GENERA.

i. Central posterior and lateral posterior eyes subequal. Central anteriors equal to, subequal, or only slightly smaller than central posteriors: not less than one-half. Lateral anteriors larger, their anterior margin forming with the anterior margin of the central posteriors a straight or procurving line. Scopula present. Lower margin of fang-groove with five unequal teeth . . . . . CTENUS, Walck.

ii. Central posterior eyes distinctly larger than the lateral posteriors. Central anteriors very much smaller than the central posteriors: one-third only. Lateral anteriors very minute, oblique; their anterior margin forming with the anterior margin of the central posteriors a recurved line. Scopula absent. Lower margin of fang-groove with five equal teeth . . . . . CELÆTYCHEUS, E. Simon.

## CTENUS.

*Ctenus*, Walckenaer, Tabl. des Aran. p. 18 (1805).

Type *C. dubius*, Walck. Cayenne.

The Central-American species of this genus known to me may be recognized as follows, but they are so closely allied and their characters so involved that it is difficult to furnish any thoroughly satisfactory tables:—

*Males.*

A. Carapace distinctly raised and gibbous at the base above, slightly bilobate. Tibia and tarsus of pedipalp without pad of soft hair on the inner side. (These characters fix the position of the Central-American species of *Ctenus* amongst those of the Neotropical region generally.)

i. Protarsus iv. straight, not curved or sinuous.

*a*. Ocular quadrangle broader than long, much narrower in front; anterior central eyes much smaller than the posterior central. Length of carapace equal to, or slightly longer than, patella and tibia iii. (Abdomen with a pale, longitudinal, central area above.)

1. Second row of eyes straight by the anterior margins. Size much larger. Tibial spur of palpus concave beneath, very stout, and bifid at its apex, with another short sharp spur near its base in front . . . . . *calcaratus*, sp. n.

2. Second row of eyes procurved by the anterior margins. Size much smaller. Tibial spur of palpus not concave beneath, comparatively slender, simple and hooked at its apex, without a second spur near its base in front . . . . . *ensiger*, sp. n.

*b*. Ocular quadrangle longer than broad, slightly narrower in front. Anterior central eyes slightly smaller than the posterior central. Length of carapace less than that of patella and tibia iii. (Abdomen with a longitudinal dorsal dentated band.)

1. Tibial apophysis of palpus very broad and truncate at apex, without spurs. Central lobe of palpal organs short, very broad, transverse, broader than long. Stylum shorter, uniformly curved, bluntly pointed, not filiform at the apex . . . . . *incolans*, sp. n.

2. Tibial apophysis less broad and more pointed at the apex, with two distinct spurs springing from it, the smaller near the apex above, the other towards the base above. Central lobe of palpus very long, much longer than broad, four or five times its breadth, sinuous, dilate at the apex. Stylum long, sinuous, filiform at the apex . . . . . *spiralis*, sp. n.

ii. Protarsus iv. strongly curved, sinuous in the second half . . . . . *sinuatipes*, F. Cambr.

## *Females.*

A. Ocular quadrangle not or scarcely narrower in front, slightly longer than broad.

*a**. Ocular quadrangle slightly narrower in front; anterior central eyes distinctly smaller than the posterior central.

i. Carapace equal in length to that of patella and tibia iii. together. Patella and tibia i. equal to patella and tibia iv.

* See figure of vulva . . . . . *sinuatipes*.

** See figure of vulva . . . . . *convexus*, sp. n.

ii. Carapace longer than patella and tibia iii. Pat. + tib. i. longer than pat. + tib. iv.

*a*. Carapace equal to protarsus iv. . . . . *supinus*, sp. n.

*b*. Carapace shorter than protarsus iv.

1. Vulva with two dark chitinous pieces on each side, and behind these on each side a stout curved dentiform process . . . *alienus*, sp. n.

2. Vulva without chitinous side-pieces, dentiform processes very small.

*aa.* Vulva very broad, produced on each side into a rounded lobe. Size much larger: length 23 mm. . . . . *bilobatus,* sp. n.

*bb.* Vulva narrower, not nearly so much produced laterally. Size much smaller: length 18 mm. . . . . *incolans.*

*b**. Ocular quadrangle not narrower in front (if anything, slightly wider); anterior central eyes equal to the posterior central . . . . . *peregrinus,* sp. n.

B. Ocular quadrangle very much narrower in front, broader than long. Anterior central eyes less than half the diameter of the posterior central.

*a.* See figure of vulva . . . . . *excavatus,* sp. n.

*b.* See figure of vulva . . . . . *ensiger.*

*c.* See figure of vulva . . . . . *byrrhus,* E. Sim.

### 1. **Ctenus supinus,** sp. n. (Tab. VII. fig. 33, ♀.)

Type, ♀, in coll. Godman & Salvin.

♀. Total length 17 millim. Carap. 8 × 6. Legs: i. 26; ii. 24; iii. 22; iv. 29·5. Pat.+tib. i. 8·5; ii. 8; iii. 6·5; iv. 9. Prot. i. 5; ii. 4·5; iii. 4·5; iv. 8.

♀. Carapace, mandibles, and legs deep mahogany-brown, clothed with grey pubescence. Legs freckled with spots of grey pubescence. Abdomen deep olive-brown or black, unicolorous above and below. (It is very likely that in some specimens there is a central pale dorsal band.)

Carapace almost level above, in profile. Second row of eyes procurved, as in *C. incolans.* Ocular quadrangle slightly longer than broad, narrower in front; anterior eyes smaller, both pairs over half a diameter apart. Clypeus equal to one diameter of an anterior central eye.

*Hab.* Costa Rica (*Rogers*).

### 2. **Ctenus peregrinus,** sp. n. (Tab. VII. figg. 34, 34 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin.

♀. Total length 25 millim. Carap. 11 × 8·10. Legs: i. 45; ii. 43; iii. 38; iv. 50. Pat. + tib. i. 16; ii. 14·75; iii. 12·25; iv. 15. Prot. i. 10; ii. 9; iii. 9; iv. 14.

♀. Carapace and legs dark mahogany-brown, clothed with very fine pubescence and dark grey short hairs. Legs beneath and sternum paler brown. Abdomen deep dusky black, with a central dorsal, longitudinal, deeply dentated band extending from the base to the spinners, consisting of seven more or less triangular orange-yellow blotches. Underside paler, unicolorous.

Carapace straight above, in profile. Second row of eyes procurved, anterior margins of centrals aligned with posterior margins of laterals. Ocular quadrangle slightly longer than broad, not narrower in front (if anything, slightly wider); eyes subequal. Clypeus equal to almost one and a half diameters of an anterior central eye.

*Hab.* Guatemala (*Sarg*).

### 3. **Ctenus bilobatus,** sp. n. (Tab. VIII. figg. 8, 8 *a*, ♀.)

Type, ♀, in Brit. Mus.

♀. Total length 23 millim. Carap. 10·5 × 8. Legs: i. 39·5; ii. 37; iii. 33; iv. 42·5. Pat.+tib. i. 13·75; ii. 12·5; iii. 10; iv. 12·5. Prot. i. 8; ii. 7·5; iii. 7; iv. 11.

♀. Carapace and legs mahogany-brown, clothed with grey pubescence. Carapace bearing a broad central band of yellow-grey pubescence and another marginal band of the same hue. Abdomen brown, with a broad

central dorsal dentated band of yellowish pubescence. Ventral surface with four lines of spots of white pubescence.

Carapace almost level, in profile, above, very slightly gibbous behind. Second row of eyes procurved; posterior margins of laterals not aligned with the anterior margins of centrals, but falling behind them. Ocular quadrangle longer than broad, narrower in front; anterior eyes distinctly smaller than posterior, both pairs over half a diameter apart. Clypeus equal to one and a quarter diameters of an anterior central eye.

*Hab.* MEXICO (*Mus. Brit.*).

### 4. **Ctenus incolans,** sp. n. (Tab. VII. figg. 35, 35 *a*, ♂; 36, ♀.)

Type, ♀, in coll. Godman & Salvin.

♀. Total length 18 millim. Carap. 8 × 6. Legs: i. 27·5; ii. 26; iii. 24; iv. 23. Pat.+tib. i. 10; iii. 7·5; iv. 10. Prot. i. 5·5; iii. 5; iv. 8·5.

♀. Carapace and legs mahogany-brown, clothed with grey pubescence, more noticeable on the dorsal area of the protarsi of the legs. Abdomen dull olive-brown, with a short basal central longitudinal pale band. Underside with two longitudinal pale lines. (The colours are, however, too much faded to admit of description.)

Carapace almost level above, in profile. Second row of eyes procurved; posterior margins of laterals falling just behind the anterior margin of centrals. Ocular quadrangle slightly longer than broad, slightly narrower in front; anterior eyes slightly smaller, both pairs over half a diameter apart. Clypeus equal to one and a quarter diameters of an anterior central eye.

*Hab.* GUATEMALA (*Sarg*).

### 5. **Ctenus alienus,** sp. n. (Tab. VIII. fig. 2, ♀.)

Type, ♀, in coll. Godman & Salvin.

♀. Total length 25 millim. Carap. 10·5 × 8. Legs: i. 37; ii. 34; iii. 31; iv. 40. Pat.+tib. i. 13; ii. 12; iii. 10; iv. 12·5. Prot. i. 7·5; ii. 7·5; iii. 7; iv. 11.

♀. Carapace and legs dark mahogany-brown, clothed with grey pubescence; mandibles black. Abdomen pale olive-brown, with a pale triangular basal dorsal blotch and four pairs of dark rounded blotches extending to the spinners. Ventral surface pale brown, with a central broad dark band margined with a broken white line on each side and a pair of indistinct central lines.

Carapace almost level above, in profile, slightly raised behind. Second row of eyes procurved; posterior margins of laterals not aligned with the anterior margins of centrals, but falling behind them. Ocular quadrangle longer than broad, narrower in front; anterior eyes distinctly smaller, both pairs about half a diameter apart. Clypeus equal to about one and a half diameters of an anterior central eye.

*Hab.* GUATEMALA (*Sarg*).

### 6. **Ctenus excavatus,** sp. n. (Tab. VIII. figg. 3, 3 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin.

♀. Total length 8·5 millim. Carap. 7·5 × 5·5. Legs: i. 24·5; ii. 24; iii. 22; iv. 28. Pat.+tib. i. 9; ii. 8; iii. 6·5; iv. 9. Prot. i. 5; iv. 7·5.

♀. Carapace and legs mahogany-brown, the former with a broad central bar and a marginal band of yellow-grey pubescence, the latter mottled with grey pubescence. (Abdomen too much discoloured to furnish any character.)

Carapace horizontal above. Second row of eyes straight (recurved in appearance), the posterior margins of the laterals aligned with the centres of the centrals. Ocular quadrangle broader than long, narrower in front; anterior central eyes less than one-half the posterior central, both pairs being over half a diameter from

each other; posterior centrals larger than posterior laterals. Clypeus over one diameter of an anterior central eye. Lower margin of fang-groove with three large and two small teeth.

Vulva formed on the same plan as in *C. fungifer* &c. from the Eastern Archipelago. It consists of a broad transverse semilunar convexity, its concave side directed forward, having a stout tooth on each side posteriorly.

*Hab.* Mexico, Soledad in Guerrero (*H. H. Smith*).

Two adult females were taken by Mr. H. H. Smith at Soledad. *C. excavatus* is allied to *C. bilobatus*, having the irregular white lines beneath the abdomen, though probably without any dentate band on the dorsal area; but the straightness of the anterior row of eyes of the former will serve to separate the two, that of *C. bilobatus* being procurved.

### 7. **Ctenus spiralis,** sp. n. (Tab. VIII. figg. 4, 4 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin.

♂. Total length 16 millim. Carap. 9×7. Pat.+tib. i. 14; iii. 10·5; iv. 14. Prot. i. 9·25; iii. 7; iv. 12.

♂. Carapace and legs mahogany-brown, probably clothed with grey pubescence; abdomen dark olive-brown, paler beneath. (The colour and pattern of the specimen are not well preserved, the pubescence having been to a very great extent rubbed off.)

Carapace slightly raised behind and bilobate. Tibial apophysis of palpus obtuse, with two distinct spurs springing from it, the smaller near the apex, the other towards the base above. Central lobe of palpus very long, much longer than broad, four or five times its breadth.

*Hab.* Costa Rica (*Rogers*).

### 8. **Ctenus sinuatipes.** (Tab. VIII. figg. 5, 5 *a–d*, ♂; 6, 6 *a*, ♀.)

*Ctenus sinuatipes,* F. P.-Cambr. Ann. & Mag. Nat. Hist. (6) xix. p. 84, t. 3. figg. 4 *d*, 6 *e*, 7 *f* (1897) [1].

Type, ♂, in Mus. Brit.

♀. Total length 22 millim. Carap. 10. Legs: i. 38; iv. 41·5. Pat.+tib. i. 13; iii. 10; iv. 13.

♂. Total length 30 millim.

*Hab.* Costa Rica, La Palma (*Tristan* [1]).

### 9. **Ctenus curvipes.**

*Microctenus curvipes,* Keys. Verh. zool.-bot. Ges. Wien, xxx. p. 579, t. 16. fig. 24 (1881) [1].

*Hab.* Panama [1].

Judging by the figure given in Keyserling's paper of the protarsus of the last pair of legs, this species is certainly not identical with that whose protarsus is figured by M. Simon in Hist. Nat. Araign. éd. 2, ii. p. 107, fig. 100 (d). It rather resembles *C. sinuatipes,* F. P.-Cambr., but if correctly drawn it is quite distinct from this species too.

### 10. **Ctenus calcaratus,** sp. n. (Tab. VIII. figg. 7, 7 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin.

♂. Total length 11 millim. Carap. 6 × 5·75.

♂. Carapace and legs dull mahogany-brown, clothed with grey pubescence. Abdomen clothed with dull brown pubescence, with a pale longitudinal, oval, dorsal area. Ventral area pale, with a central dusky-brown line.

Carapace raised or gibbous at the base above, slightly bilobate. Tibia and tarsus of pedipalp without pad of fine soft hairs on the inner side. Protarsus iv. straight. Second row of eyes straight by the anterior margins. Ocular quadrangle broader than long, much narrower in front; anterior central eyes much smaller than the posterior central. Length of carapace equal to, or slightly longer than, patella and tibia iii.

Apophysis on tibia of palpus long, curved, sharp-pointed and bifid at the apex, with a spur or stout spine at the base on the inner side in front.

*Hab.* GUATEMALA (*Sarg*).

Two adult males and an immature female of this species were found by Mr. F. Sarg.

### 11. **Ctenus humilis.**

*Microctenus humilis,* Keys. Verh. zool.-bot. Ges. Wien, xxxvii. p. 456, t. 6. fig. 35 (1887) [1].

Type in Cambr. Mus., Mass., U.S.A.

*Hab.* NICARAGUA [1].

I have not seen a specimen of this species.

### 12. **Ctenus byrrhus.** (Tab. VIII. fig. 9, ♀.)

*Leptoctenus byrrhus,* E. Simon, Ann. Soc. Ent. Fr. 1888, p. 210 (♀) [1].

*Hab.* MEXICO [1].

The figure is taken from the type kindly lent us by M. E. Simon.

### 13. **Ctenus rubripes.**

*Ctenus rubripes,* Keys. Verh. zool.-bot. Ges. Wien, xxx. p. 577, t. 16. fig. 23 (1881) [1].

*Hab.* PANAMA [1].

### 14. **Ctenus hibernalis.**

*Ctenus hibernalis,* Hentz, Spid. United States, p. 35, t. 5. figg. 1–4 (1875) [1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 277 [2].

*Hab.* NORTH AMERICA, S. Alabama [1], La Chuparosa in Lower California [2].—MEXICO, Minatitlan [2], Orizaba [2].

### 15. **Ctenus punctulatus.**

*Ctenus punctulatus,* Hentz, loc. cit. p. 35, t. 5. figg. 5, 6 [1]; Banks, loc. cit. p. 277 [2].

*Hab.* NORTH AMERICA, Alabama [1].—MEXICO, Tepic [2].

### 16. **Ctenus ensiger,** sp. n. (Tab. VIII. figg. 10, 10 *a*, *b*, ♂; 11, ♀.)

Type ♂, cotype ♀, in coll. Godman & Salvin.

Total length, ♂ 7, ♀ 10·5 millim.

♂ ♀. Carapace orange-brown, with two longitudinal dusky bands; legs, sternum, and mouth-parts orange-brown; mandibles darker. Abdomen dull brown, mottled and marked with sooty-black spots; a conspicuous double series of six or more runs down the dorsal area, more noticeable in the male.

Carapace almost level, in profile, slightly gibbous behind. Second row of eyes straight by the anterior margin. Ocular quadrangle broader than long, distinctly narrower in front; anterior central eyes distinctly smaller, less than half a diameter apart. Clypeus equal to one diameter of an anterior central eye. Structure of the female similar in general characters to that of the male.

♂. Palpus: tibia with a long curved ensiform spur on the outer side, directed straight forward, its apex abruptly curved upward, forming a small hook. The palpal organs consist of a bulb having a lamelliform process at its base, the seminal duct running across in a sinuous course, about the middle, with a second small lamelliform process at its apex, and a short sinuous black spine, its point lying over a semitransparent racquet-shaped process.

A figure of the vulva of the female will be found on the Plate (Tab. VIII. fig. 11).

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 17. **Ctenus convexus,** sp. n. (Tab. VIII. fig. 12, ♀.)

Type, ♀, in coll. Godman & Salvin.

Total length 20 millim. Carap. 10 × 7·5. Legs: i. 38; ii. 36·5; iii. 32; iv. 42·5. Pat. + tib. i. 12·25; iii. 10; iv. 12·75.

♀. Carapace and legs mahogany-brown, clothed with grey pubescence. Abdomen brown, with a central scalloped pale band. Underside with two longitudinal pale bands.

Carapace slightly raised behind, in profile. Second row of eyes procurved, the posterior margin of the laterals falling well behind the anterior margin of the centrals. Ocular quadrangle a little longer than broad, slightly narrower in front; anterior central eyes distinctly smaller than the posterior central. Clypeus equal to one and a half diameters of an anterior central eye.

*Hab.* Guatemala (*Sarg*).

This species is closely allied to *C. sinuatipes*, but the form of the vulva is quite distinct.

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Note.—*Phoneutria oculifera*, Karsch, Zeitschr. ges. Naturw. (3) iv. p. 350 (1879). —*Hab.* Mexico.

I am unable to identify this species. It is very likely a *Cupiennius*.

*Ctenus mordicus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 100, t. 13. figg. 6, 6 *a* (♀), 7, 7 *a–e* (♂).—*Hab.* Guatemala, Salinas de Nueve Cerros (*Sarg*).

This species is identical with *Cupiennius salei* (Keys.). See below under Pisauridæ.

## CELÆTYCHEUS.

*Celætycheus*, E. Simon, Hist. Nat. Araign. éd. 2, ii. p. 114 (1898).

Type *C. flavostriatus*, E. Simon. Brazil.

Central posterior eyes distinctly larger than the lateral posteriors, half a diameter apart. Central anteriors

much smaller, their diameter equal to one-third of that of the central posteriors, scarcely half a diameter apart. Lateral anteriors very minute, oblique, their anterior margin forming with that of the central posteriors a recurved line. Clypeus equal to the diameter of an anterior central eye. Tibiæ i. and ii. with 2—2—2—2—2 spines beneath, the apical pair smaller (the male has two lateral ones on the outside —one dorso-apical, and one on the inner side towards the base). Protarsi i. and ii. with 2—2—2 spines beneath. Scopula absent. Tarsi with claw-tufts and two claws. Lower margin of fang-groove with five equal teeth.

### 1. **Celætycheus paradoxus,** sp. n. (Tab. VIII. figg. 13, 13 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 8 millim.

♂. The colours of the single specimen have faded. Its identification will be best determined by the structure of the palpal organs; while its general characters will be found under the generic diagnosis.

*Hab.* Panama, Bugaba (*Champion*).

## Fam. SELENOPIDÆ.

Legs laterigrade. Carapace and abdomen very much compressed. Eyes more or less in one transverse row, much compressed together longitudinally. Other characters generally similar to those of the Clubionidæ.

The spiders belonging to this family form a group very distinct and easily recognizable. That they were originally Clubionidæ there is little doubt, but, under pressure of circumstances, they have become flattened out and the legs have been forced to assume a laterigrade position. They live under stones and the bark of trees, squeezing themselves into the narrowest crevices. The ability to squat quite flat into a depression in the stone under which they are concealed, or on the surface when on the look-out for prey, gives them many advantages in the struggle for life. It is interesting to note the effect of this environmental compression on the eyes. The lateral posteriors remain more or less in the normal position, merely advancing forward. The central posteriors, however, have been pressed forward till, in some cases, they are almost in a line with and outside of the central anteriors; in other cases (*S. minutus*, F. P.-Cambr.) they are not advanced so far forward. This same forcing forward of the central posteriors has pressed the lateral anteriors further apart, and the compression of the carapace has reduced the longitudinal ocular area and the height of the clypeus to a minimum.

### SELENOPS.

*Selenops,* Latreille, Nouv. Dict. d'Hist. Nat. xxx. p. 579 (1819).

Type *S. radiatus*, Latr. Spain.

There is no doubt that the name *Selenops* was selected by Dufour, but adopted and published by Latreille the year before Dufour's work appeared. Latreille characterized the genus, and selected as the type a species discovered in Spain by Dufour which he named *S. radiatus*. Dufour called this species, a year later, *S. homalosoma*. It is quite possible that the name *Hypoplatæa*, MacLeay, will have to be revived for a

certain group of the Selenopidæ, reserving *Selenops* for that group of which the Spanish species is typical. At present, however, one must leave the matter as it stands.

The species from Central America described below under the name *S. minutus* presents, in the situation of the eyes, great differences from *S. mexicanus*, Keys., and were it not that intermediate forms occur one would not hesitate to separate these two forms under different genera.

The habits of *Selenops* are characteristic. These spiders cling to the sides of stones, rocks, and logs, darting with marvellous rapidity round to the side which is beneath when the stone is turned. It is often impossible even to catch a glimpse of them as they dash round and adapt themselves to the chinks and hollows on the surface. The coloration and hairy armature tend also to render the spider almost invisible on the grey mottled surface of the stones.

The genus occurs in the subtropical and tropical regions of all parts of the world.

The four species known to me may be separated as follows:—

*Males.*

A. Four central eyes in a straight or very slightly recurving row. Lateral anteriors equal to one-half the diameter of the adjacent centrals; about equidistant between these and the lateral posteriors.

i. Spur of tibia of palpus broad, lamelliform, concave on inner side, truncate at the apex, not reaching higher than the basal external tubercle of the tarsus.

*a*. Spur of tibia longer, with a more slender curved basal stem. Apical concavity bearing a short stout spur directed from its centre. Unca at the external apex of the bulb larger, its point directed inward, but not backward. Its base is broadly concave . . . *nigromaculatus*, Keys.

*b*. Spur of tibia shorter, without any slender basal stem. Apical concavity without a central spur, but with a two-fold lower margin. Unca at external apex of bulb, smaller, rising at right angles to the plane of the bulb, its point directed downward and backward. Its base much narrower and more cylindrical . . . *marginalis*, sp. n.

ii. Spur of tibia of palpus very narrow, ensiform, elongate, obtusely pointed at the apex, reaching far beyond the external basal tarsal tubercle. Unca of bulb very broad at the base, concave, divided into two limbs, the outer longer, more slender, directed forward and inward, the inner limb shorter, stouter, directed backward and downward . . . . . *mexicanus*, Keys.

B. Four central eyes forming a strongly recurved row. Lateral anterior eyes equal in diameter to only one-quarter of that of the adjacent centrals, situated much closer to the lateral posteriors than to the centrals . . . . . *minutus*, sp. n.

*Females.*

A. As in the male sex.
  i. Vulva with a strong, black, horseshoe-shaped central area, with two transverse, widely separate, oval cavities along the posterior margin . *mexicanus.*
  ii. Vulva without central horseshoe-shaped area.
    *a*. Posterior margin of the vulva deeply emarginate, with a central rectangular chitinous piece, a little broader than long . . . . *marginalis.*
    *b*. Posterior margin of the vulva not emarginate, with two widely separate oval concavities (sec. Keys.) . . . . . *nigromaculatus.*
B. As in the male sex . . . . . *minutus.*

Note.—The vulva in *Selenops* varies very much in detail. Many specimens, obviously the young of *S. mexicanus*, appear at first sight to belong to entirely different species.

### 1. **Selenops nigromaculatus.** (Tab. VIII. figg. 14, 14 *a*, ♂.)

*Selenops nigromaculatus*, Keys. Spinn. Amer., Laterigradæ, p. 230, t. 6. figg. 126, 126 *a* [1].

Type in coll. E. Simon, Paris. Total length, ♂ 8·5, ♀ 13·9 millim.

*Hab.* Mexico [1].

Thanks to M. Simon, I have been able to examine the type, ♂, of this species. The legs are not annulated with black, but probably are so in the female and immature examples. *S. mexicanus*, however, has the legs very darkly annulate in some examples.

### 2. **Selenops marginalis,** sp. n. (Tab. VIII. figg. 15, 15 *a*, ♂; 16, ♀.)

Type ♂, cotype ♀, in coll. Godman & Salvin. Total length, ♂ 9, ♀ 10·5 millim.

♂ ♀. Carapace dull orange-brown, margined with a black line. Abdomen ochreous-brown, marbled with darker brown, with a distinct diamond-shaped black mark towards the spinners above. (The abdomen is too shrivelled to be able to describe its pattern and coloration.) Legs pale orange-yellow, faintly annulated with dusky black at the middle of the femur, the base of the patella and tibia, the middle of the latter, and at the base of the protarsus.

The four central eyes form a row slightly recurved, the centrals being slightly smaller than the laterals. Anterior laterals small, about half the diameter of the central posteriors, situated closer to these eyes than to the lateral posteriors, less than a diameter from the former.

The two central anteriors are rather over half a diameter apart, a quarter of a diameter from the central posteriors. Lateral posteriors nearly two diameters from the central posteriors and slightly smaller than them. Clypeus equal to one-third the diameter of an anterior central eye.

♂ palpus: for a description of this and of the vulva of the ♀ see the Table of the species.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 3. **Selenops mexicanus.** (Tab. VIII. figg. 17, 17 *a*, *b*, ♂; 18, 18 *a*, *b*, ♀.)

*Selenops mexicanus*, Keys. Spinn. Amer., Laterigradæ, p. 223, t. 6. figg. 125, 125 *a* [1].

Type in coll. E. Simon, Paris. Total length, ♂ 12·7, ♀ 16·3 millim.

*Hab.* Mexico [1], Chilpancingo, Atoyac, Tuxtla (*H. H. Smith*); Guatemala (*Sarg*); Nicaragua, Chontales (*Janson*); Costa Rica (*Rogers*), San José (*Tristan*); Panama, David, Chiriqui (*Champion*).

This fine species is apparently abundant throughout Central America. The immature forms are much more highly coloured than the adult, their legs being very distinctly annulated with black. When the specimen is dry, however, and probably in a natural state as well, this contrast of colours is almost lost beneath the grey pubescence. Noticeably also in this species the vulva assumes a variety of forms, apparently fully developed, in the immature examples. The horseshoe-shaped area is the first to appear, in the form of a pair of dark opposing crescents.

4. **Selenops minutus,** sp. n. (Tab. VIII. figg. 19, 19 *a–c*, ♂ ; 20, 20 *a*, ♀ ; 20 *b*, var., ♀ .)

Type ♂, cotype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 8 millim.

♂ ♀. Carapace pale orange. Legs and sternum dull orange-yellow. The legs are tinged with dusky brown, while the femora have on the outside an irregular longitudinal dusky-brown streak. Abdomen dull yellow, with black markings, very variable in shape and extent. The paler forms exhibit a dusky central dorsal line, which expands laterally behind, while the margins of the abdomen have a few scattered spots of brown. In the darker forms the central bar is much darker and more extended behind, leaving a transverse sinuous pale bar in the form of an inverted **W**. The sides of the abdomen are much more deeply suffused with brown.

The four central eyes form a strongly recurved row, the anterior centrals somewhat smaller ; anterior laterals very minute and inconspicuous, situated nearer the posterior laterals than to the posterior or anterior centrals.

♂ palpus : external apophysis at the apex of the tibia bibranchiate ; the upper branch slightly clavate, the lower curved, simple, and semitransparent. Tarsus nearly circular, strongly produced on the outer side at the base. The palpal organs are furnished on the inner side with a long lamelliform process curving outward and pointed at the apex. On the outer margin of the bulb is a small sinuous process.

♀ vulva (apparently not quite fully matured in any of the specimens). (See Tab. VIII. fig. 20 *a*.)

*Hab.* GUATEMALA (*Sarg*).

5. **Selenops morosus.**

*Selenops morosa,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 267, t. 16. fig. 14[1].

♀. Total length 17 millim.

*Hab.* MEXICO, Tepic [1].

I have not seen a specimen of this species.

## Fam. HETEROPODIDÆ.

Eyes eight, in two more or less parallel transverse rows. Legs laterigrade. Carapace and abdomen somewhat compressed as a rule. Apex of protarsi without a hard chitinous rim, but furnished with a trilobate membrane ; the central lobe triangular, the lateral lobes rounded.

The last-named character separates the Heteropodidæ from all other Clubionid spiders, as well as from the Selenopidæ. Otherwise the spiders belonging to this family are simply Clubionids with a peculiar life-habit which has tended to modify their leg-movements. They run with great speed, clinging flat to the surface over which

they pass. Some of them, as *Heteropoda*, carry the egg-sac tucked under the sternum; others weave together a few leaves in a tubular form, making a retreat, and in this they conceal the egg-sac, rushing forth with startling rapidity if the retreat be handled. In this they resemble *Chiracanthium* and other Clubionids.

### Subfam. *PSEUDOSPARIANTHINÆ*.

Spinners set upon a distinct basal segment. Apex of protarsi i. and ii. with modified membranous lobes; not so well developed as in Heteropodinæ.

## PSEUDOSPARIANTHIS.

***Pseudosparianthis*, E. Simon, Bull. Soc. Zool. Fr. 1887, p. 473.**

Type *P. fusca*, E. Simon. Amazons.

Posterior row of eyes procurved, subequal, equidistant; anterior row slightly procurved; centrals the largest of the eight, rather further from each other than from the laterals. Apex of abdomen attenuate; spinners set upon a common basal segment. Upper margin of fang-groove with three or four larger teeth; lower margin with very minute teeth, very variable in number, 4–8 &c. Tibiæ i. and ii. with 2—2—2 spines beneath. Protarsi i. and ii. with two long spines beneath. Tarsi compressed and slightly convex above. Protarsus iii. with two spines and a group of very small curved spines in the centre at the apex beneath; protarsus iv. with 2—2 spines and a similar group of small spines beneath at the apex.

### 1. **Pseudosparianthis variabilis**, sp. n. (Tab. VIII. figg. 21, 21 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 12 millim.

♀. Carapace, legs, and mandibles orange-yellow, the former margined and mottled with streaks of brown. The tibiæ, protarsi, and tarsi of the first two pairs of legs are also darker. Sternum, mouth-parts, and coxæ of legs somewhat paler. Abdomen pale clay-yellow, streaked and mottled with brown, including a pair of shoulder-bands and a series of more or less distinct ⩘-shaped bars, becoming broken up into a series of triangular spots towards the spinners; lateral area streaked with brown; ventral surface pale yellow, unicolorous.

Structure similar to that recorded in the generic diagnosis. Eyes of posterior row nearly four diameters apart. Central anteriors one and three-fourths apart, the same distance from the laterals.

Vulva consisting of an elongate cordiform central area, its apex attenuate and directed backward.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

This spider agrees neither with the diagnosis of *Stasina* nor *Pseudosparianthis*. It is certainly not congeneric with Eastern forms of the first-named genus, neither does it agree with M. Simon's diagnosis of *Pseudosparianthis*, said to possess three pairs of spines beneath the protarsi i. and ii. (though the type, *P. fusca*, Sim., possesses but two pairs: *cf.* Bull. Soc. Zool. Fr. 1887, p. 473).

The present species possesses only one pair of spines beneath protarsi i. and ii., as does *Stasina*. Notwithstanding these discrepancies, or because of them, I leave this spider under the genus *Pseudosparianthis*, which will probably be found to have a wider signification than is suggested in the original diagnosis.

## Subfam. *HETEROPODINÆ.*

**Spinners normal, not set upon a basal segment. Apex of protarsi i. and ii. with distinct well-developed trilobate membrane.**

The genera of this subfamily represented in Central America may be tabulated thus :—

| | |
|---|---|
| **A. Central anterior eyes smaller than the laterals. Clypeus high, at least as high as the diameter of the anterior lateral eyes.** | |
| **1. Posterior row of eyes slightly recurved, almost straight. Carapace compressed behind** | **Heteropoda, Latr.** |
| **2. Posterior row of eyes very strongly recurved. Carapace raised and slightly bilobate behind** | **Hœdillus, E. Sim.** |
| **B. Central anterior eyes equal to or larger than the laterals. Clypeus very low, not more than one-fourth the diameter of an anterior central eye.** | |
| **1. Posterior row of eyes distinctly broader than the anterior row** | **Sparassus, Walck.** |
| **2. Posterior row of eyes not, or scarcely, broader than the anterior row.** | |
| ***a.* Anterior row of eyes (seen from above) almost straight** | **Ramnes, O.P.-Cambr.** |
| ***b.* Anterior row of eyes (seen from above) strongly recurved** | **Prusias, O. P.-Cambr.** |

**Note.—It is probable that *Hœdillus* does not belong to the Heteropodinæ, but the genus is left provisionally where M. Simon has placed it.**

### HETEROPODA.

***Heteropoda*, Latreille, Nouv. Dict. d'Hist. Nat. x. p. 544 (1803).**

**Type *H. venatoria* (Linn.). Tropical America.**

**Anterior row of eyes straight or slightly procurved; centrals three-fourths of a diameter apart, one-half a diameter from the laterals, whose diameter almost equals twice that of the centrals. Posterior row slightly recurved, much wider than the anterior. Central eyes smaller than the laterals, one and a half diameters apart, rather less from the laterals. Clypeus higher than the diameter of the anterior laterals. Superior margin of fang-groove with two, inferior margin with four teeth. Central quadrangle longer than broad, wider behind, anterior eyes slightly smaller than the posterior.**

#### 1. **Heteropoda venatoria.** (Tab. VIII. figg. 22, 22 *a–c*, ♂; 23, 23 *a–f*, ♀.)

***Aranea venatoria* *, Marcgrav, Hist. Nat. Bras. libr. vii. p. 249, fig. (1648) [1].**

**——, Sloane, Nat. Hist. Jamaica etc. ii. p. 181, t. 235. figg. 1, 2 (1725) [2].**

**——, Merian, Surin. Ins. p. 13, t. 18 (upper fig.) (1730) [3].**

**——, Gronovius, Zoophylac. Anim. p. 217 (1763) [4].**

**——, Linn. Syst. Nat. ed. 12, i. 2, p. 1035 (1767) [5].**

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*** In Hist. Nat. Araign. éd. 2, ii. p. 55, M. Simon gives to this species the name *H. regia*, Fabr. Fabricius, however, when he fixed the name *venatoria* upon a figure (3) in Browne's 'Natural History of Jamaica,' and described a Ctenizid, did not select one of the two spiders to which Linnæus applied this name, namely,**

*Thomisus venatorius,* Latr. Gen. Crust. et Ins. i. p. 114 (1806) [6].
*Heteropoda venatoria,* Thorell, Ann. Mus. Genova, x. p. 484 (1877) [7]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 266 [8]; McCook, Amer. Spid. ii. pp. 109, 153, 272, 273, figg. 189, 190, 279 (1890) [9]; Marx, Cat. Aran. Temp. Amer. p. 560 (1890) [10].
*Micrommata setulosa,* Perty, Del. Anim. art. Bras. p. 195, t. 38. fig. 13 (1830–34) [11].
*Ocypeta setulosa,* C. Koch, Die Arachniden, iii. p. 40, fig. 195 [12].
*Olios setulosus,* Tacz. Horæ Soc. Ent. Ross. ix. p. 12 (1872) [13].
*Olios leucosius,* Walck. Ins. Apt. i. p. 566 (1837) [14].
*Olios antillanus,* Walck. loc. cit. p. 568 [15].
*Olios columbianus,* Walck. loc. cit. p. 571 [16].
*Ocypete murina,* C. Koch, Die Arachniden, xii. p. 36, fig. 978 (1845) [17].
*Ocypete draco,* C. Koch, loc. cit. p. 441, fig. 983 [18].
*Olios javensis,* Doleschall, Natuurk. Tijdschr. voor Ned. Ind. (3) iii. p. 428 (1857) [19].
*Olios gabonensis,* Lucas, in Thomson's Arch. Ent. p. 31 (1858) [20].
*Olios zonatus,* Doleschall, Natuurk. Tijdschr. voor Ned. Ind. (3) v. p. 54, t. 14. fig. 4 (1859) [21].
*Ocypete brunneiceps,* Giebel, Zeitschr. f. ges. Naturw. xv. p. 320 (1863) [22].
*Olios regius,* Gerst. in v. der Decken's Reise in Ost-Afr. iii. 2, p. 482 (1873) [23].
*Sarotes regius,* L. Koch, Arachn. Austral. p. 675, t. 56. figg. 1, 2 (1877) [24].
*Heteropoda regia,* E. Simon, Ann. Soc. Ent. Fr. 1877, p. 63 [25].

*Hab.* North America, Florida [9], California [10].—Mexico (*Forrer*), Tepic [8]; Guatemala (*Sarg*).—South America [5], Guiana [3], Brazil [1 14 16]; Antilles [14 15], Jamaica [2].—Tropical Africa; Java [19]; Celebes [7]; Amboina; Philippine Is. [25]; Burma; Australia [24], &c.

The head-quarters of the genus *Heteropoda* are doubtless in Indo- and Austro-Malaysia, a few forms only occurring in the Western Hemisphere. The present species is exceedingly abundant in all seaport towns, being transported in trading-vessels. It penetrates also far into the interior, wherever human habitations occur and cockroaches, which form its staple food, are abundant.

## HŒDILLUS.

*Hœdillus,* E. Simon, Hist. Nat. Araign. éd. 2, ii. p. 202 (1898).

Type *H. sexpunctatus,* E. Simon. Central America.

Eyes of anterior row forming a strongly procurved line. Centrals much smaller than the laterals, less than half the diameter. Centrals one diameter apart, almost in contact with the laterals. Posterior row strongly recurved; centrals much smaller than laterals, three-fourths of a diameter apart, one and three-fourths from the laterals. Lateral posteriors set on large tubercles. Central posteriors larger than central anteriors; lateral posteriors smaller than lateral anteriors. Posterior row distinctly broader

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fig. 2 of Browne's 'History' and three figures in the works of Merian, Sloane, and Marcgrav.—The three figures in the last-mentioned works are obviously those of our *H. venatoria,* as commonly accepted, and for this spider I retain Linnæus's name, while *H. regia* (Fabr.) becomes a synonym of it, supposing the two species to be identical, which appears highly probable.

than the anterior row. Central quadrangle longer than broad, broader behind. Clypeus high, equal to one diameter of an anterior central eye.

Superior margin of fang-groove with three teeth—a single one towards the base of the fang, and a pair towards the inner angle; inferior margin with two widely separate teeth. Sternum almost circular.

### 1. **Hœdillus sexpunctatus.** (Tab. IX. figg. 1, 1 *a–d*, ♀.)

***Hœdillus sexpunctatus,*** E. Simon, Hist. Nat. Araign. éd. 2, ii. p. 202 (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 10 millim.

*Hab.* GUATEMALA (*Sarg*[1]).

## SPARASSUS.

***Sparassus,*** Walckenaer, Tabl. Aran. p. 39, t. 4. figg. 40, 41 (1805).

***Olios,*** Walckenaer, loc. cit.

Type *S. argelasius*, Walck.,=*S. spongitarsus* (Duf.) *.

Eyes of anterior row forming a straight or slightly procurved line. Centrals either equal to or slightly larger than the laterals. Eyes of posterior row forming a straight or slightly procurved line, broader than the anterior row; eyes approximately equal and equidistant. Clypeus very narrow, about half the diameter of one of the anterior eyes, sometimes more. Superior margin of fang-groove with two, inferior with two, three, or four teeth. Central quadrangle quadrate or longer than broad; smaller in front.

The Central-American species of which the males are known to me may be thus distinguished:—

### *Males.*

A. Anterior row of eyes procurved.

*a.* Tibial apophysis nearly as long as the segment. Base of palpal organs without decided bulb, not presenting spinigerous lobes.

1. Apophysis broad, abruptly narrowed at the apex, terminating in a short, conical, unguiform point. Tarsus of palpus broad, one-half longer than broad . . . . . *obtusus*, sp. n.
2. Apophysis slender, long, somewhat spatuliform, directed upward and forward. Tarsus of palpus scarcely longer than broad . . *obscurus*, Keys.

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* *S. argelasius*, Walck., was selected as the type of the genus *Sparassus* by Thorell in 1869–70. Walckenaer's name might be held to be a "*nomen nudum*" were it not for the generic diagnosis, and the fact that his species is well known under the synonym *S. spongitarsus* (Duf.) (*cf.* Simon, Ann. Soc. Ent. Fr. 1875, p. 334, nota 2).

*Sparassus argelasius*, Latr., requires a new name.

*O. spongitarsus* (Duf.) is the type of *Olios*, Walck. *Olios* is therefore a synonym of *Sparassus*.

If *S. argelasius*, Walck., be regarded as not the type, then *S. pallens* (Fabr.), the second and only other species included in *Sparassus*, after *Micrommata virescens* has been withdrawn, will become the type. In no case can *S. argelasius*, Latr., be the type.

In selecting the type of this genus in Hist. Nat. Araign. éd. 2, ii. 1, p. 46, M. Simon appears to have forsaken the principle laid down in Hist. Nat. Araign. éd. 2, i. p. 848.

NOTE.—Referring to the synonymy of *Acrosoma* and *Micrathena*, Simon remarks that where the type has not been designated, the oldest species shall be regarded as the type. *Araneus pallens*, Fabr., is certainly older than *Sparassus argelasius* (Latr.), and should therefore, on this principle, have been selected as the type.

*b*. Tibial apophysis scarcely one-third as long as the segment, stout, short, sinuous, its apex directed slightly upward. Tarsus of palpus narrow, one-fourth only as broad as long. Base of palpal organs with a distinct bulb, the central lobes being spinigerous . . . . *fugiens*, O. P.-Cambr.

B. Anterior row of eyes straight or slightly recurved.

i. Palpal bulb bearing a long, stout, spiraloid spine. Stylum short . . *stylifer*, sp. n.

ii. Palpal bulb without spiraloid spine. Stylum short.

*a*. Tibial apophysis bibranchiate.

1. Upper branch very long, stout at base, sinuous, and tapering to its point, directed forward. Lower branch very broad, concave on the inside, its rim emarginate. Tibia scarcely longer than broad. Organs simple, bilobate, with a third pale, corrugated lobe between the two at their apex. Tarsal segment with a short, blunt, chitinous spur at its apex beneath . . . . . *minax*, O. P.-Cambr.

2. Upper branch long, narrow at base, dilate at apex, with a sharp spur on the outer side. Lower branch insignificant, a mere cusp . *manifestus*, O. P.-[Cambr.

*b*. Tibial apophysis tribranchiate.

1. Upper external branch deeply bifid at the apex. Ensiform branch springing from near the base, the upper branch almost at a right angle to it . . . . . *clarus*, Keys.

2. Upper external branch not bifid at the apex.

*a**. Lower margin of external branch bidentate. External branch, seen from above, abruptly elbowed and directed inwards. Middle branch broad, spatuliform. Palpal bulb terminating in a stout stylum, strongly curved and notched beneath at the apex . . . . . *ensiger*, sp. n.

*b**. Lower margin of external branch simple. External branch, seen from above, simply rounded and slightly curving inwards; its apex ending in a short point, seen in profile. Middle branch long, narrow, fused with the ensiform branch at the base, its apex depressed, bearing a small triangular prominence at its base beneath. Palpal bulb bilobate, the left lobe terminating in a short, slightly curved, simple stylum, its apex lying behind a pale corrugated process which lies between both lobes at their apex . . . . . *annulatus*, sp. n.

Note.—The characters which distinguish the females, being based upon the form of the vulva, do not admit of tabulation.

## 1. **Sparassus obtusus**, sp. n. (Tab. IX. figg. 2, 2 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin.

♂. Total length 16 millim. Carap. 7·5 × 7·5. Legs: i. 40; ii. 41·5; iii. 31; iv. 33. Tibia iv. 7·5.

♂. Carapace and legs deep mahogany-brown. Abdomen dull yellow-brown.

Carapace as long as broad, equal to length of tibia iv., much compressed in the centre above. Anterior row of eyes slightly procurved; eyes equal, almost equidistant; centrals slightly closer, distant almost one diameter

apart. Posterior row almost straight, slightly procurved; centrals slightly smaller, two diameters apart, two and a half from laterals.

Clypeus less than half a diameter of anterior centrals. Ocular quadrangle broader than long.

Tibia of palpus with a single short stout spur, very convex at the base, abruptly narrowed, with a short, broad, curved, cusp-like point. The segment itself bears five long spines. Palpal bulb without a free stylum, bearing a long, stout, chitinous process, hollow, its mouth opening backward, terminating in a fine sharp rim or edge.

*Hab.* GUATEMALA (*Sarg*).

A single adult male of this fine species has come to hand.

### 2. **Sparassus obscurus.** (Tab. IX. figg. 3, 3 *a*, ♂.)

***Sparassus obscurus,*** Keys. Spinn. Amer., Laterigradæ, p. 255, t. 7. fig. 139[1].

Type, ♂, in coll. Dr. Koch.

*Hab.* MEXICO[1]; PANAMA, Tolé in Chiriqui (*Champion*).

A single adult male, most probably belonging to this species, has been received from Tolé.

### 3. **Sparassus fugiens.** (Tab. IX. figg. 4, 4 *a*, ♂.)

***Sadala fugiens,*** O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 66, t. 9. figg. 10, 10 *a–d* (♂)[1].

Type, ♂, in coll. Godman & Salvin.

*Hab.* GUATEMALA, Montaña de Cahabon (*Sarg*[1]).

### 4. **Sparassus simoni.**

***Sadala simonii,*** O. P.-Cambr. loc. cit. p. 65, t. 8. figg. 17, 17 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin.

*Hab.* GUATEMALA, Salinas de Nueve Cerros (*Sarg*[1]).

### 5. **Sparassus erroneus.** (Tab. IX. fig. 5, ♀.)

***Olios erroneus,*** O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 67, t. 9. figg. 1, 1 *a–e* (♀)[1].
***Olios exasperans,*** O. P.-Cambr. loc. cit. p. 69, t. 9. figg. 2, 2 *a, b* (♀)[2].

Type, ♀, in coll. Godman & Salvin.

*Hab.* GUATEMALA, Petexbatum[1], Antigua[1], Chicoyoito[2] (*Sarg*).

Our figure is taken from the type of *Olios exasperans*.

### 6. **Sparassus similis.**

***Vindullus similis,*** O. P.-Cambr. loc. cit. p. 67, t. 9. figg. 9, 9 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin.

*Hab.* GUATEMALA, Chisec (*Sarg*[1]).

### 7. **Sparassus manifestus.** (Tab. IX. fig. 6, ♂.)

*Olios manifestus*, O. P.-Cambr. loc. cit. p. 68, t. 8. figg. 16, 16 *a–d* (♂), 18, 18 *a–e* (♀)[1].

Type ♂, cotype ♀, in coll. Godman & Salvin.

*Hab.* Guatemala, Cahabon and Petexbatum (*Sarg*[1]).

### 8. **Sparassus stylifer,** sp. n. (Tab. IX. figg. 7, 7 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin.

Total length, ♂ 9, ♀ 10 millim. (immature).

♂ ♀. Carapace, abdomen, and legs pale straw-yellow, more or less mottled with brown. (The two examples from which the figures are taken have only recently changed their skins, and an elaborate description of their coloration is impossible.)

♂. Palpus: tibia with a spur at the apex on the outer side, almost as long as the segment, stout at the base, more attenuate towards the apex. Viewed from above, it is directed obliquely outward and forward, curving slightly inward towards its apex. Viewed in profile from the outside, it appears geniculate about the middle, curving upward more or less abruptly. The palpal bulb is cylindrical and squarely truncate at the apex, whence there springs a long stout spiraloid spine, its inner margin concave, directed downward, encircling the bulb and terminating in a long sinuous filiform point. A small fan-shaped process, its margin serrate, lies at the anterior end of the bulb.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*).

A single adult male and an immature female alone have come to hand.

### 9. **Sparassus minax.** (Tab. IX. figg. 8, 8 *a*, ♂; 9, ♀.)

*Sparassus minax*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 177, t. 22. figg. 3, 3 *a* (♀), 4, 4 *a–e* (♂)[1].

Type ♂, cotype ♀, in coll. Godman & Salvin.

*Hab.* Mexico, Omilteme in Guerrero 7000 to 9000 feet (*H. H. Smith*[1]).

### 10. **Sparassus clarus.** (Tab. IX. figg. 10, 10 *a*, *b*, ♂; 11, 11 *a*, *b*, ♀.)

*Sparassus clarus*, Keys. Spinn. Amer., Laterigradæ, p. 253, t. 7. fig. 138[1].

Type, ♂, in coll. E. Simon, Paris.

*Hab.* Mexico[1], Amula in Guerrero (*H. H. Smith*).

A single male received from Mr. H. H. Smith appears to belong to this species. I have not seen Keyserling's type.

Our figures of the male are taken from the Guerrero specimen, of the female from Keyserling's drawing.

### 11. **Sparassus ensiger,** sp. n. (Tab. IX. figg. 12, 12 *a*, *b*, ♂.)

Type, ♂, in Mus. Brit.

♂. Total length 11 millim. Carap. 5·25 × 5 millim.

♂. Carapace, legs, and sternum pale orange-yellow, the caput and legs speckled with minute spots of pale rose-brown. Abdomen dull clay-yellow, with a finely outlined wedge-shaped mark and a central line to the spinners brown. The sides are dotted and streaked with rose-brown.

Carapace convex, scarcely longer than broad. Anterior row of eyes slightly recurved, posterior row slightly procurved. Eyes of anterior row equal; centrals just over half a diameter apart, less than a half from the laterals. Eyes of posterior row equal, equidistant, one and a quarter diameters apart. Clypeus scarcely equal to one diameter of an anterior central eye.

Palpus: tarsus nearly three times as long as broad. Palpal bulb consisting of one large lobe (the two lobes distinguished in *S. annulatus* being fused) whose apex forms a very strongly curved stylum, its extreme apex blunt and notched on the inner side. Tibial apophysis trifid: the upper branch longer, thin, ensiform, sinuous, directed upward; seen from above, elbowed in the middle, its apex directed outward; the middle branch black, curved, spatuliform at its apex; the outer branch stout, with two strong teeth or spurs on the lower margin (seen in profile); seen from above its apex is strongly elbowed and directed upward.

*Hab.* Mexico (*Mus. Brit.*).

## 12. **Sparassus annulatus,** sp. n. (Tab. IX. figg. 13, 13, *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin.

♂. Total length 8 millim. Carap. 4·25 × 4 millim.

♂. Carapace, legs, and sternum pale orange. The base of the tibia, a spot towards the apex, the base, sometimes a spot in the middle, and the apex of the protarsus of all four pairs of legs, black.

Carapace convex, scarcely longer than broad. Anterior row of eyes slightly recurved, posterior row slightly procurved. Eyes of anterior row equal; centrals half a diameter apart, one-quarter a diameter from the laterals. Eyes of posterior row equal, almost equidistant, one and a quarter diameters apart.

Palpus: tarsus three times as long as broad. Palpal bulb consisting of two elongate lobes, with a curved, pale process between them at their apex; the left lobe terminates in a curved stout point, forming a stylum (*a*).

Tibial apophysis trifid; its upper branch longer, thin, sinuous, and pointed (*b*); its middle branch broader, shorter, concave, lamelliform, its apex depressed, having also towards its base a thin triangular piece, directed outward and downward; its lower or outermost branch, viewed in profile, terminates in a depressed point and is itself concave lamelliform in character.

*Hab.* Mexico, Rio Papagaio in Guerrero (*H. H. Smith*).

A single adult male of this very distinct form was taken by Mr. Smith.

## 13. **Sparassus ferrugineus.** (Tab. IX. fig. 14, ♀.)

*Ocypete ferruginea,* C. Koch, Die Arachniden, iii. p. 41, fig. 196[1].

*Sparassus ferrugineus,* Keys. Spinn. Amer., Laterigradæ, p. 256, t. 7. fig. 140[2]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 267[3].

*Olios sagus,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 69, t. 9. figg. 3, 3 *a–c* (♀)[4].

Type of *S. ferrugineus*, Keys., from Mexico, in coll. Keyserling, in Mus. Brit.; that of *O. sagus*, O. P.-Cambr., from Guatemala, in coll. Godman & Salvin.

♀. Total length 12·6 millim.

*Hab.* Mexico, Peak of Orizaba[2], Tepic[3]; Guatemala, Petexbatum (*Sarg*[4]).

It is unlikely that the specimens from Central America are identical with the original *Ocypete ferruginea* from Brazil; but being unable to see Koch's type, I leave the identity of the species as determined by Keyserling. The figure of the vulva is taken from Keyserling's type.

## RAMNES.

*Ramnes*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 102 (1892).

Type *R. semotus*, O. P.-Cambr., ♀, juv. Panama.

Eyes of anterior row forming a slightly recurved line; posterior row also slightly recurved. Posterior centrals distinctly smaller than anterior centrals. Central quadrangle slightly longer than broad. Posterior row very slightly broader than the anterior row. Clypeus very narrow, equal to a quarter of the diameter of the anterior central eye. Anterior centrals three-fourths of a diameter apart, one-half from the laterals. Posterior centrals one and a fourth diameters apart, the same distance from the laterals. Laterals three-fourths of a diameter apart.

Sternum broader than long. Superior margin of fang-groove with two teeth, inferior with four teeth.

Tarsi and protarsi of legs i., ii., iii., and iv. scopulate. Claw-tuft present; tarsal claws pectinate.

### 1. **Ramnes semotus.** (Tab. IX. figg. 15, 15 *a*, *b*, ♀.)

*Ramnes semotus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 102, t. 13. figg. 8, 8 *a–d* (♀) (immature)[1].

Type, ♀, in coll. Salvin & Godman.

*Hab.* Panama, Bugaba (*Champion*[1]).

## PRUSIAS.

*Prusias*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 101 (1892).

Type *P. nugalis*, O. P.-Cambr., ♂, juv. Panama.

Eyes of anterior row forming a slightly recurved line. Posterior row slightly recurved. Posterior centrals distinctly smaller than anterior centrals. Central quadrangle much longer than broad. Posterior row not broader than anterior row. Clypeus very narrow, hardly one-eighth the diameter of an anterior central eye. Anterior centrals half a diameter apart, less than one-eighth from the laterals (almost in contact). Posterior centrals one and a quarter diameters apart, one diameter from the laterals. Eyes of anterior row subequal, centrals slightly larger; of posterior row equal, distinctly smaller than those of anterior row. Laterals three-fourths of a diameter of a posterior lateral eye apart. Superior margin of fang-groove with two teeth, inferior with four.

### 1. **Prusias nugalis.** (Tab. IX. figg. 16, 16 *a*, ♂.)

*Prusias nugalis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. 102–247, t. 13. figg. 9, 9 *a–d* (♂), t. 31. figg. 1, 1 *a* (♀) (immature)[1].

Type ♂, cotype ♀, in coll. Godman & Salvin.

*Hab.* Mexico, Atoyac in Vera Cruz (*H. H. Smith*[1]); Panama, Bugaba (*Champion*[1]).

A male and female, both immature, from Panama and Mexico respectively.

## Fam. THOMISIDÆ.

Eyes eight, in two transverse rows. Legs laterigrade. Carapace and abdomen usually more or less compressed, sometimes very much so. Apex of protarsi with a hard chitinous lobe, but without the membranous appendages characteristic of the true Heteropodidæ.

Though possessing, on the whole, unmistakable general characteristics which enable

them to be at once recognized, yet the members of this family pass so readily through the Philodrominæ and blend with those of the Heteropodidæ and Selenopidæ, that it is not easy to draw any hard-and-fast line between them. The absence of teeth on the fang-groove amongst the majority of the Thomisidæ, which might separate them from the Heteropodidæ, fails, because in the Stephanopsinæ and Philodrominæ they are present. So, too, does the absence of the scopulæ beneath the tarsi fail, since they are present amongst the Philodrominæ. The spiders comprised in this family form an offshoot of the great two-clawed race of Arachnomorphæ, of which the Drassidæ, Clubionidæ, Heteropodidæ, Selenopidæ, and Ctenidæ are also offshoots, more or less divergent.

So far as the life-habits of the members are concerned, they are vagrant, making no web, nor even any kind of tubular retreat, such as is made by the majority of the allied families. The species of the Philodrominæ, most of all resembling those of the Heteropodidæ, run with great swiftness over herbage and the foliage of trees. The Misumeninæ and Stephanopsinæ also have similar habits, many of them being adapted for concealment amongst the petals of flowering plants and shrubs, where they lurk and lie in wait for honey-seeking insects, springing upon them suddenly from some vantage-point in the corolla. As excellent examples of this habit amongst the Thomisidæ of Europe may be cited the beautiful white and rose-pink tinted *Thomisus onustus*, which lurks amongst the pink heather-blossom, and *Misumena vatia*, white, with red slashes, frequenting similarly-coloured blossoms in woods and pastures; while very characteristic and of the same habits as the last-named may be noted *Epicadus heterogaster* of the Neotropical Region. This latter has its body (curiously moulded into long prominences) and legs apparently formed of white transparent wax, exactly imitating the white waxen blossoms amongst which I have myself found the female and male together in the forests of the Lower Amazons.

Other Thomisidæ are more crab-like, though their habits are very similar: such are the various species of *Xysticus*, *Oxyptila*, *Synema*, *Tmarus*, *Stephanopoides*, &c. Many of these are found indifferently on bare places on the ground, as well as amongst the foliage of trees and shrubs. When alarmed they usually gather up their short legs round the body or attempt a sidelong retreat in very crab-like fashion.

There are in reality, as already suggested, no very definite characters distinguishing this family from the Heteropodidæ. In the majority of cases, however, the third and fourth pairs of legs are shorter than the first and second pairs; the colulus is either absent or very minute; the tarsal claws are two in number, sometimes with a claw-tuft, more frequently without; the tarsi and protarsi are much more often entirely devoid of scopuliform hairs; the mandibles are without denticles in some subfamilies, in others they are present on either one or both margins of the fang-groove; the protarsi are without a trilobate membrane at the apex.

The Thomisidæ may be more or less conveniently divided into the following

subfamilies, of which the chief characteristic differences are given in the subjoined table:—

SUBFAMILIES.

I. Labium and maxillæ normal, not attenuate or acuminate at the apex.
  A. Lower margin of the fang-groove at least not armed with denticles; often, too, the upper margin is unarmed. Legs ii. longer than legs i.
    *a*. Tarsi i. and ii. scopulate beneath, in the female at all events. Hairs of body pubescent or plumose, prone, not erect. Legs iii. and iv. not or scarcely shorter than i. and ii. . . . . PHILODROMINÆ.
    *b*. Tarsi i. and ii. not scopulate beneath. Hairs of body filiform or bacilliform, erect. Legs iii. and iv., as a rule, much shorter than i. and ii. . . . . MISUMENINÆ.
  B. Lower margin of the fang-groove, and upper margin as well, armed with denticles. Legs i. and ii. subequal . . . . . STEPHANOPSINÆ.
II. Labium very narrow, attenuate and acuminate at the apex.
  *a*. Sternum not narrowed behind, normal, produced as far as coxæ iv. Mandibles with a tuft of hair at the apex beneath . . . . . STROPHIINÆ.
  *b*. Sternum narrowed behind, not produced beyond coxæ iii. Mandibles without any tuft of hair at the apex . . . . . APHANTOCHILINÆ.

## Subfam. *PHILODROMINÆ*.

The members of this subfamily may be generally recognized by the longer third and fourth pairs of legs, by the scopulate anterior tarsi, and in some genera the protarsi as well. The hairy covering of the body is not, as it is amongst the more typical Thomisidæ, spiniform and erect, but plumose or pubescent and prone, or adpressed to the body, though there are exceptions. The lower margin of the fang-groove is not armed with denticles, and the second pair of legs is longer than the first pair. This subfamily is represented in all tropical, semitropical, and temperate regions of both hemispheres. The spiders of the genus *Philodromus* usually inhabit foliage of different kinds, while those of *Thanatus* and *Tibellus* are generally found amongst dry grass or amongst rushes and sedge-grass in swampy places.

The genera may be roughly separated as follows, though, without much greater research, no final declarations can be made as to the tenability of these tabulated differential characters:—

GENERA.

A. Legs iv. shorter than legs i. [Posterior row of eyes slightly recurved or almost straight (*Ebo*). Posterior eyes equidistant, or much further from each other than from the laterals. Legs iii. equal to or a little longer than legs iv.]
  1. Legs ii. much longer than legs i. Central anterior eyes larger than lateral anteriors. Posterior row of eyes almost straight, slightly recurved . . . . . EBO, Keys.

2. Legs ii. only slightly longer than legs i. Central anterior eyes equal to or smaller than lateral anteriors. Posterior row of eyes more or less recurved.

*a*. Central posterior eyes much further from each other than from the laterals. Lateral anterior eyes nearer to the central anteriors than to the central posteriors. Posterior row of eyes less strongly recurved . . . . . PHILODROMUS, Walck.

*b*. Eyes of posterior row equidistant or centrals slightly closer. Lateral anterior eyes equidistant from the central anterior and central posterior eyes, forming with them an equilateral triangle on each side. Posterior row of eyes more strongly recurved . . . . APOLLOPHANES, O. P.-[Cambr.

B. Legs iv. longer than legs i. [Posterior row of eyes more strongly recurved. Posterior eyes equidistant or centrals closer together than to the laterals. Legs iii. equal to or shorter than legs iv.]

1. Eyes of posterior row approximately equidistant. Legs iii. shorter by the length of the tarsus only than legs iv. Carapace and sternum scarcely longer than broad. Coxæ iv., as a rule, more widely separate. Anterior ocular oval, formed by the anterior eyes, and the posterior centrals much less isolated from the lateral posteriors. Posterior row less strongly recurved. Lateral anteriors closer to the central anterior than to the central posterior eyes . [THANATUS, C. Koch.]

2. Central posterior eyes much nearer to each other than to the laterals. Legs iii. much shorter, by the length of the tarsus, protarsus, and often by half the tibia, than legs iv. Carapace and sternum much longer than broad. Coxæ iv. adjacent. Anterior ocular oval, much more isolated from the posterior lateral eyes. Posterior row much more strongly recurved. Lateral anteriors equidistant from the central posterior and central anterior eyes, together forming an equilateral triangle on each side . . . . . TIBELLUS, E. Sim.

Of these genera no examples of the typical *Thanatus* have been taken in Central America, and the characters of the genus, the type of which is *T. formicinus* (Clerck) [Tab. IX. fig. 22 (♀)], are inserted only for the sake of comparison. *Apollophanes* stands upon rather slender characters, and probably represents *Thanatus* in the Western Hemisphere. *Philodromus* and *Ebo*, especially in considering the eye-formula, fall together; *Apollophanes* and *Thanatus* also fall together, while *Tibellus* is more isolated.

## EBO.

*Ebo*, Keyserling, Verh. zool.-bot. Ges. Wien, 1884, p. 678.

Type *E. latithorax*, Keys. N. America.

This genus is distinguishable from *Philodromus* by its very much longer second pair of legs and the almost straight posterior row of eyes.

Only one species has been recorded from Central America, and I have not come across

any specimens of the genus in the entire collection before me. A figure of the North-American type is given for comparison with the allied forms [Tab. IX. fig. 17 (♀)].

### 1. Ebo mexicana.

*Ebo mexicana*, N. Banks, Proc. Calif. Acad. Sci. (3) i. p. 265, t. 16. fig. 9 (♀)[1].

Type, ♀, in Mus. San Francisco. Total length 4 millim.

*Hab.* Mexico, Hermosillo, Sonoran Region [1].

## PHILODROMUS.

*Philodromus*, Walckenaer, Faune Fr., Aran. p. 86 (1825).

Type *P. aureolus* (Clerck). Europe.

Clypeus at least as high as the length of the central quadrangle, sternum broadly truncate at the base. Anterior tibial and protarsal spines all about the same length. Posterior row of eyes only slightly recurved, central eyes further apart than from the laterals. Anterior row of eyes slightly recurved. Central quadrangle as long as broad. Eyes of anterior row subequal. Labium much longer than broad. Legs of the second pair longer than those of the first. Coxæ iv. wide apart. Protarsi and tarsi scopulate, sometimes only very slightly, beneath.

A figure of the European type is given for comparison [Tab. IX. fig. 18 (♀)].

The two Central-American representatives of this genus, each known from a single example only, may be recognized as follows:—

A. Femora of all four pairs of legs with a broad black longitudinal band, less distinct on iii. and iv. in front, also a less distinct band behind . *decolor*, O. P.-Cambr.

B. Femora plain . . . . . *albicans*, O. P.-Cambr.

### 1. Philodromus albicans.

*Philodromus albicans*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 227, t. 29. figg. 9, 9 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 4·25 millim.

*Hab.* Mexico, Atoyac in Vera Cruz (*H. H. Smith* [1]).

The type of this species is not mature.

### 2. Philodromus decolor.

*Philodromus decolor*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 291, t. 32. figg. 3 3 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 3 millim.

*Hab.* Costa Rica (*Sarg* [1]).

## APOLLOPHANES.

*Apollophanes*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 252 (1898).

Type *A. punctipes*, O. P.-Cambr. Central America.

Carapace almost circular. Posterior row of eyes more strongly recurved than in *Philodromus*. Eyes of posterior row equidistant. Lateral anterior eyes equidistant between the central anteriors and central

posteriors, forming an equilateral triangle on each side, thus differing from *Thanatus*. Clypeus not higher than the width of the central quadrangle. Legs ii. longer than legs i.; legs i. longer than iv. Protarsi and tarsi with scopuliform hairs beneath in the male, these being scarcely traceable in the female. Coxæ iv. wide apart.

This genus, which may eventually prove to be identical with *Cleocnemis*, E. Simon, differs from *Tibellus* in the shortness of the carapace and the much less widely separate posterior lateral eyes; from *Philodromus* in the more strongly recurved posterior row of eyes, and in the fact that the eyes are themselves equidistant or the centrals closer; and from *Thanatus* in the position of the lateral anterior eyes.

So far as the species which occur in Central America are concerned, I am unable to tabulate the characters of the females of *A. punctipes* and *A. distinctus*, because the type of the latter is immature. A male, which from its general characters undoubtedly belongs to *A. punctipes*, bears so close a resemblance in the shape of the palpal organs and the tibial spur to the type of *A. maculatipes* that I hesitate to separate them. The type of *A. maculatipes* is, however, very much larger and has the palpi more strongly developed. I strongly suspect that the male which appears to belong to *A. punctipes* is a dwarf example of *A. maculatipes*; and if so, the two forms will be identical, and the type of *A. punctipes* will be the female of *A. maculatipes*, of which the male only is known. Figures of this dwarf specimen are given with those of *A. maculatipes* under the name *A. punctipes*. The two forms do not present nearly such striking differences as sometimes occur between larger and smaller examples of identical species in other groups—as, for instance, in the genus *Drassodes* of the European fauna.

### 1. **Apollophanes punctipes.** (Tab. IX. figg. 19, 19 *a*, ♂; 20, ♀.)

*Tibellus punctipes*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 79, t. 9. figg. 15, 15 *a–c* (♀) [1].

*Apollophanes punctipes*, O. P.-Cambr. loc. cit. p. 252 [2].

*Thanatus punctiger*, O. P.-Cambr. loc. cit. p. 88, t. 11. figg. 12, 12 *a–c* (♀) [3].

Type *T. punctipes*, ♀, total length 7 millim.; type *T. punctiger*, ♀, total length 8·25 millim.; deuterotype * *T. punctipes*, ♂, total length 4·5 millim.: in coll. Godman & Salvin.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith* [2]); Guatemala, between Sibacapo and Tajulla [1], Chiacam in Vera Paz [3] (*Sarg*); Costa Rica, San José (*Tristan*).

### 2. **Apollophanes maculatipes.** (Tab. IX. figg. 21, 21 *a*, *b*, ♂.)

*Philodromus maculatipes*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 118, t. 15. figg. 14, 14 *a–e* (♂) [1].

*Thanatus longipes*, O. P.-Cambr. loc. cit. p. 168, t. 21. figg. 12, 12 *a–c* (♂) [2].

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* Mexico, Chilpancingo [1], Omilteme [2] (*H. H. Smith*).

* I consider it advisable to distinguish the forms, of either sex, ascribed, as its sexual complement, by the author to his original type, by using the terms *androtype* and *gynetype*, for male or female complement respectively. The term *deuterotype* is used to designate a complement, of either sex, ascribed by one who is

### 3. **Apollophanes distinctus.**

*Apollophanes distinctus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 290, t. 32. fig. 2 (♀)[1].

Type, ♀, immature, in coll. Godman & Salvin. Total length 5·75 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*[1]).

## TIBELLUS.

*Tibellus*, E. Simon, Araign. Fr. ii. p. 307 (1875).

Type *T. oblongus* (Walck.). Europe.

Carapace much longer than broad. Posterior row of eyes very strongly recurved. Posterior centrals much closer to each other than to the laterals, these with the anterior centrals forming an isolated transverse oval group. Lateral anteriors equidistant from anterior and posterior centrals. Central quadrangle much longer than broad, only slightly narrower in front. Clypeus as high as the length of the central quadrangle. Protarsi and tarsi scopulate beneath. Coxæ iv. closely situate. Legs iii. much shorter than iv.

### 1. **Tibellus affinis.** (Tab. IX. fig. 23, ♀.)

*Tibellus affinis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 252, t. 31. figg. 11, 11 *a–d* (♀)[1].

Type, ♀ (immature), in coll. Godman & Salvin. Total length 6 millim.

*Hab.* Mexico, Amula (*H. H. Smith*[1]).

## Subfam. *MISUMENINÆ*.

Mandibles without teeth on the margins of the fang-groove. Tarsi more or less cylindrical, not compressed, nor furnished with claw-tufts or spatuliform hairs, only with very slight tufts of simple hairs. Colulus present, but very minute. Tarsi i. and ii. not scopulate beneath. Legs iii. and iv. shorter, as a rule much shorter, than i. and ii.

The following Table includes the more readily observed characters differentiating the genera of this subfamily:—

AA. Legs i. and ii. entirely devoid of spines, except beneath the tibiæ and protarsi. Protarsi i. and ii. with from 6–10 pairs of spines beneath, but no lateral spines, except occasionally a single one.

I. Ocular area exhibiting a more or less distinct angular prominence projecting from between the lateral eyes on each side.

A. Central quadrangle longer than broad, not narrower in front. [Pistius, E. Sim.]

B. Central quadrangle broader than long, narrower in front.

*a*. Lateral angle much more prominent, apex acute. Lateral anterior eyes not larger than central anteriors. Clypeus higher, equal to four diameters of an anterior central eye. (Central anteriors much nearer to each other than to the laterals.) . . . . . Thomisus, Walck.

*b*. Lateral angle much less prominent, apex obtuse. Lateral anterior eyes distinctly larger than central anteriors.

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not the author of the type. A *cotype* (or *syntype*) can only refer to specimens of the same sex as the original type, taken at the same time and in the same locality.

Clypeus lower, two to two and a quarter diameters of an anterior central eye.

1. Central anteriors distinctly further from each other than from the laterals. Posterior row almost straight . . — MISUMENOIDES, gen. nov.

2. Central anteriors much closer to each other than to the laterals. Posterior row more strongly recurved . . . — [RUNCINIA, E. Sim.]

II. Ocular area not exhibiting any distinct angular prominence between the lateral eyes. (Lateral eyes not separated on distinct tubercles, but united by a convex ridge. Posterior row less strongly recurved. Posterior laterals not larger than posterior centrals.)

i. Lateral anterior eyes not larger than central anteriors. Posterior centrals and laterals distinctly smaller than central anteriors . . . . . — [MISUMENA, Latr.]

ii. Lateral anterior eyes distinctly larger than central anteriors. Posterior eyes not smaller than anterior centrals . . . . — MISUMENOPS, gen. nov.

BB. Legs i. and ii. spinose, the femora as well as the tibiæ and protarsi, the latter furnished with lateral spines as well as with a paired series beneath. Protarsi i. and ii. with from 3–5 pairs of spines only beneath, and usually 3 lateral spines on each side. (Lateral eyes seated on two distinct tubercles; posterior row of eyes strongly recurved; posterior laterals distinctly larger than the centrals.)

A. Lateral anterior tubercle larger than the posterior. Clypeus almost vertical.

i. Legs much longer in proportion; tibiæ and protarsi i. and ii. each much longer than the carapace. (Central posteriors closer together than to the laterals; central quadrangle a little longer than broad, ♂, or as long as broad, ♀.) . . . — [DIÆA, Thor.]

ii. Legs shorter in proportion; tibiæ and protarsi i. and ii. each shorter than the carapace.

*a*. Tarsal claws i. and ii. with from 3–6 denticles.

1. Legs longer and more slender; tibiæ i. and ii. with five pairs of spines beneath; protarsi i. and ii. with five pairs beneath and three lateral spines on each side. (Femora more spinose than in *Oxyptila*, especially in the male sex. Females with three distinct erect spines on the upper surface of the femora, besides others. Eyes of posterior row either equidistant, centrals nearer together, or further apart.) . . . . . — XYSTICUS, C. Koch.

2. Legs shorter and stouter. Tibiæ i. and ii. with 2—2 (*Oxyptila*) or 3—3 (*Bassania*) spines; protarsi i. and ii. with 3—3 (*Oxyptila*) or 4—4 (*Bassania*) stout spines beneath, and one or more lateral spines. (Central posterior eyes closer to each other than to the laterals.)

* Central quadrangle not longer than broad. Femora i. and ii. spinose, as in *Xysticus*. Tibiæ i. and ii. with 3—3 spines; protarsi i. and ii. with 4—4 spines beneath and 3—3 lateral spines. Carapace compressed, quite flat in the region of the thoracic stria . . . . . BASSANIA, O. P.-Cambr.

** Central quadrangle much longer than broad (in the type of the genus). Femora i. and ii. scarcely spinose, with one spine or none. Tibiæ i. and ii. with 2—2 spines; protarsi i. and ii. with 3—3 spines and sometimes one lateral spine on the other side. Carapace not compressed, quite convex in the region of the thoracic stria . . . . . [OXYPTILA, O. P.-Cambr.]

*b*. Tarsal claws i. and ii. with from 10–12 denticles.

* Central quadrangle narrower in front. Eyes of anterior row almost equidistant; anterior row almost straight, the anterior margins of the laterals falling just in front of the middle of the centrals. Labium twice as long as broad; maxillæ less elongate, somewhat dilate at the apex . . . . . SYNEMA, E. Sim.

** Central quadrangle not narrower in front, if anything broader. Central anteriors distinctly further from each other than from the laterals. Anterior margin of the laterals aligned with the posterior margin of the centrals. Labium three times as long as broad. Maxillæ distinctly more elongate and not dilate at the apex . . . . . PARASYNEMA, gen. nov.

B. Lateral anterior tubercle smaller than the posterior. Clypeus and mandibles obliquely porrected, upwards and forwards . . TMARUS, E. Sim.

The above-mentioned characters and the more complete generic diagnoses given below are taken from specimens of the female sex. The distinction drawn by M. E. Simon [Hist. Nat. Araign. (2) i. p. 970] between the Misumeneæ and Diæeæ on the ground of the separation or otherwise of the lateral eye-tubercles cannot be retained, for the males of *Misumenops* have the lateral eyes situated upon two distinct tubercles, while those of the female are nearly similar to those of *Misumena*.

Indeed, the position of the eyes and the character of the ocular group will probably prove quite unreliable in separating the genera of the Thomisidæ; for instance, we have the carina across the ocular group characteristic of *Runcinia* present in a species which is obviously close to *Oxyptila*. With regard to the making of new genera in these groups, there is only the other alternative of merging all the existing ones together.

It is extremely probable that all the Misumenoid forms, including *Pistius*, *Thomisus*,

and *Diæa*, will some day be merged under the genus *Thomisus*, while the others, such as *Synema*, *Oxyptila*, &c., will run together under *Xysticus*.

The genera *Pistius*, *Misumena*, *Oxyptila*, and *Diæa* are not, so far as the material at hand is concerned, represented in Central America.

## THOMISUS.

*Thomisus*, Walckenaer, Tabl. Aran. p. 28 (1805).

Type *T. albus* (Gmelin). Africa.

Anterior row of eyes strongly recurved (less so in *T. albus* and *T. onustus*); eyes not equidistant, centrals much closer, equal in size. Posterior row very slightly recurved; eyes not equidistant, centrals much further apart, equal in size, slightly smaller than those of anterior row. Central quadrangle much broader than long, much narrower in front. Clypeus vertical, very high, equal to at least four diameters of an anterior central eye. Ocular area produced into a stout conical tubercle between the lateral eyes. Protarsi i. with six pairs, ii. with four pairs of spines beneath. Tibiæ i. and ii. with one or two pairs of spines towards their apex beneath. (These spines vary in number.)

The above diagnosis is drawn from an adult female of *T. albus*.

### 1. **Thomisus odiosus.**

*Thomisus odiosus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 271, t. 34. figg. 5, 5*a*–*d* (♂) [1].

Type, ♂, total length 2·25 millim.*

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

## [PISTIUS.

*Pistius*, E. Simon, Araign. Fr. ii. p. 257 (1875).

Type *P. truncatus* (Pallas). Europe.

Anterior row of eyes strongly recurved; eyes almost equidistant, laterals distinctly larger. Posterior row straight; centrals closer to each other than to the laterals, equal in size. Central quadrangle longer than broad, not narrower in front. Clypeus vertical, very high, equal to over four diameters of an anterior central eye. Ocular area only slightly produced into a low rounded cone between the lateral eyes. Legs more spinose than in *Thomisus*.

The characters of this genus have been given for the sake of comparison. [Tab. IX. figg. 24, 24*a* (♀)].]

## MISUMENOIDES, gen. nov.

Type *M. magnus* (Keys.) = *signatus* (O. P.-Cambr.). Central America.

Anterior row of eyes slightly recurved, posterior margins of centrals cutting a line tangential with anterior margins of laterals; eyes not equidistant, centrals distinctly further apart, laterals distinctly larger than centrals. Posterior row very slightly recurved, almost straight; eyes not equidistant, centrals distinctly further apart; eyes equal in size. Central quadrangle much broader than long, distinctly narrower in front; eyes subequal.

Clypeus vertical, equal to one and a half diameters of an anterior central eye. Ocular area produced into a blunt conical tubercle between the lateral eyes; distinctly ridged through the centre.

These generic characters are drawn from the adult female.

* The type of this species cannot now be found in the Godman and Salvin collection.

*Males.*

A. Tibiæ and protarsi i. and ii. with one or two pairs of moderately stout spines on the underside.

i. Tibiæ of legs i. and ii. parallel-sided, normal, not incrassate. Legs i. and ii. unicolorous, brown or black throughout.

*a*. Tibial spur of palpus long, straight, attenuate, and simple towards the apex. Lower spur short and stout . . . . . *magnus*, Keys.

*b*. Tibial spur short, enlarged at base, terminating in a short sharp spur directed slightly outward. Lower spur longer and curving upward . . . . . *parvus*, Keys.

ii. Tibiæ of legs i. and ii. incrassate. Legs i. and ii. black, tarsi and apex of protarsi pale.

*a*. Tibiæ i. and ii. more incrassate. Abdomen orange, margined with dusky brown and with transverse brown bars on the posterior half of the dorsal area. Tibial spur long, broad, concavely truncate at the apex, the lower spur long and curved . . . . . *tibialis*, O. P.-Cambr.

*b*. Tibiæ i. and ii. less incrassate. Abdomen black, speckled with white. Tibial spur similar . . . . . *depressus*, O. P.-Cambr.

B. Tibiæ and protarsi i. and ii. without any spines, or with one or two very fine ones beneath.

*a*. Central anterior eyes distinctly smaller than the laterals. Legs i. and ii. brown; tarsi, base of protarsi, and tibiæ paler. Tibial spur not bifid; long, broad, its upper angle produced into a curving point . . . . . *annulipes*, O. P.-Cambr.

*b*. Central anterior eyes distinctly larger than the laterals. Legs i. and ii. entirely brown throughout. Tibial spur very broad, divided into two branches, the upper one sharp, the lower squarely truncate at the apex . . . . . *bifissus*, sp. n.

*Females.*

A. Tibiæ and protarsi i. and ii. not incrassate; spines on underside shorter, straighter, and not so stout, nor articulated on a more or less distinct ridge. Transverse ridge through the ocular area straighter and more pronounced. Tarsi iii. and iv. more clavate. Sternum longer than broad. Width of carapace equal to length of femur i.

i. Vulva consisting of a more or less prominent obtuse convex tubercle anteriorly.

*a*. Carapace with a broad lateral brown band. Patellæ i. and ii. not entirely brown, but mottled above and on sides with brown. Extreme base of tibia, protarsi, and tarsi suffused with brown. The obtuse convex tubercle at anterior margin of the vulva having a small deep pit in the centre and a

shallower pit on the side of each anterior shoulder. The spermathecæ lie posteriorly, one on each side of a long narrow pale wedge-shaped area, each being marked with a black chitinous spot . . . . . *magnus.*

*b.* Carapace similar, but in the type specimen very dark, leaving a small bright heart-shaped yellow spot in centre. Patellæ i. and ii. entirely pale. Apical half of protarsi i. and ii. strongly annulate with brown. Tibiæ and tarsi i. and ii. more or less suffused with brown. Vulva very similar to that of *M. magnus,* but less well developed . . . . . *parvus.*

ii. Vulva consisting of a broad deep concavity.

*a.* Patellæ i. and ii. entirely dark brown. Extreme base and apical third of tibiæ, extreme base and apical half of protarsi, and whole of tarsi dark brown . . . . . *blandus,* O. P.-Cambr.

*b.* Protarsi and tarsi i. and ii. brown . . . . . *sagittatus,* O. P.-Cambr.

*c.* Legs entirely yellow . . . . . *luteus,* O. P.-Cambr.

B. Tibiæ and protarsi i. and ii. incrassate; spines on underside longer, stouter, curved, articulated on a more or less distinct ridge on each side of the segment beneath. Transverse ridge through ocular area less pronounced and more concave, seen from in front. Tarsi iii. and iv. cylindrical. Sternum nearly circular. Width of carapace one-fourth shorter than femur i.

i. Carapace deep mahogany-brown, with a broken yellow line down the centre and a fainter line on each side. Femora i. and ii. brown, speckled with white. Patellæ and tibiæ darker; protarsi and tarsi pale brown. Abdomen black, speckled with white . . . . . *depressus.*

ii. Carapace and legs similar. Abdomen much paler. Vulva similarly formed in both species . . . . *rugosus,* O. P.-Cambr.; *vigilans,* O. P.-Cambr.*

Note.—The differences in the coloration of the above forms are not entirely reliable. The vulva, too, varies very much within certain limits. *M. signatus* (O. P.-Cambr.) and *M. propinquus* (O. P.-Cambr.) are both identical with *M. magnus* (Keys.). I have also no doubt that *M. blandus*, *M. sagittatus*, and *M. luteus* (O. P.-Cambr.) belong to the same species; and it is even possible that, considering the variability of the form of the vulva, these may all be identical with *M. magnus* (Keys.), being simply dwarf or not fully developed forms. At any rate, the males described under *M. blandus* (O. P.-Cambr.) are identical with the same sex of *M. magnus* (Keys.), of which the type is before me. The female described under *M. depressus* (O. P.-Cambr.) is simply a shrivelled example of *M. rugosus* (O. P.-Cambr.); *M. vigilans* is an undeveloped female of the same form. It appears to me highly probable that the males described under *M. tibialis* (O. P.-Cambr.) really belong to *M. rugosus* (O. P.-Cambr.), while, except for a slight difference in the incrassation of tibiæ i. and ii., I cannot distinguish the male of *M. tibialis* from that of *M. depressus.* The type (♂) of *M. vigilans* cannot now be found.

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* An immature female.

### 1. **Misumenoides vigilans.**

*Runcinia vigilans*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 72, t. 9. figg. 4, 4 *a*, *b* (♂), 5, 5 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin *. Total length, ♂ 2·5, ♀ 4·5 millim.

*Hab.* GUATEMALA, Chicoyoito (*Sarg* [1]).

The unique female is undoubtedly an immature form of *M. rugosus* (O. P.-Cambr.). The male very probably belongs to the same species.

### 2. **Misumenoides tibialis.** (Tab. IX. fig. 25, ♂.)

*Runcinia tibialis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 73, t. 10. figg. 3, 3 *a–c* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 3 millim.

*Hab.* PANAMA, Bugaba (*Champion* [1]).

### 3. **Misumenoides blandus.** (Tab. IX. fig. 26, ♀.)

*Runcinia blanda*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 74, t. 10. figg. 2, 2 *a* (♀)[1] (nec ♂).

*Runcinia sagittata*, O. P.-Cambr. loc. cit. p. 77, t. 10. figg. 7, 7 *a*, *b* (♀)[2].

*Runcinia lutea*, O. P.-Cambr. loc. cit. p. 78, t. 9. figg. 13, 13 *a*, *b* (♀)[3].

Type of *R. blanda*, ♀, *R. sagittata*, ♀, and *R. lutea*, ♀, in coll. Godman & Salvin. Total length of *R. blanda*, ♀, 7 millim.

*Hab.* GUATEMALA, Montaña de Chilasco (*Sarg* [3]); PANAMA, Bugaba [1 2], Volcan de Chiriqui [1] (*Champion*).

The males are identical with those of *M. magnus* (Keys.).

### 4. **Misumenoides rugosus.**

*Runcinia rugosa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 75, t. 9. figg. 16, 16 *a*, *b* (♀)[1].

*Runcinia depressa*, O. P.-Cambr. loc. cit. p. 75, t. 10. figg. 5, 5 *a* (♀)[2].

*Runcinia vigilans*, O. P.-Cambr. loc. cit. p. 72, t. 9. figg. 5, 5 *a–c* (♀)[3].

Type of *R. rugosa*, ♀, *R. vigilans*, ♀, and *R. depressa*, ♀, in coll. Godman & Salvin.

*Hab.* PANAMA, Bugaba (*Champion* [1]); GUATEMALA, Chiacam, Petet, Coban, Chicoyoito (*Sarg* [2 3]).

### 5. **Misumenoides depressus.**

*Runcinia depressa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 75, t. 10. figg. 4, 4 *a–c* (♂) (nec ♀)[1].

Type, ♂, in coll. Godman & Salvin. Total length, ♂, 3 millim.

*Hab.* GUATEMALA, Chiacam, Petet, Coban (*Sarg* [1]).

The female belongs to *M. rugosus* (O. P.-Cambr.), see sp. no. 4.

* That of the male cannot now be found.

### 6. **Misumenoides magnus.** (Tab. IX. figgs. 27, ♂ ; 28, 28 *a*, *b*, ♀ .)

*Runcinia magna,* Keys. Spinn. Amer., Later. p. 125, t. 2. figg. 69, 69 *a* (♂ ♀) (1880) [1].

*Runcinia blanda,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 74, t. 10. figg. 1, 1 *a–c* (♂) (nec ♀) [2].

*Runcinia signata,* O. P.-Cambr. loc. cit. p. 76, t. 9. figg. 6, 6 *a–d* (♀) [3].

*Runcinia propinqua,* O. P.-Cambr. loc. cit. p. 77, t. 10. figg. 6, 6 *a*, *b* (♀) [4].

Type of *R. magna* in coll. Keyserling, in Mus. Brit. ; of *R. dubia*, ♀, *R. signata*, ♀, and *R. propinqua*, ♀, in coll. Godman & Salvin. Total length of Keyserling's types, ♂ 4, ♀ 9·8 millim.

*Hab.* MEXICO [1] ; GUATEMALA, Cahabon, Chicoyoito (*Sarg* [2 3]) ; PANAMA, Bugaba (*Champion* [4]).—COLOMBIA [1].

### 7. **Misumenoides parvus.** (Tab. IX. fig. 29, ♂ .)

*Runcinia parva,* Keys. Spinn. Amer., Later. p. 122, t. 2. figg. 68 (♂), 68 *a* (♀) [1] ; N. Banks, Proc. Calif. Acad. Sci. (3) i. p. 264 [2].

Type, ♂, gynetype ♀, in coll. Keyserling, Mus. Brit. Total length, ♂ 2·4, ♀ 8·3 millim.

*Hab.* MEXICO, Tepic [2].—COLOMBIA [1].

### 8. **Misumenoides annulipes.** (Tab. IX. fig 30, ♂ .)

*Runcinia annulipes,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 78, t. 9. figg. 14, 14 *a–c* (♂) [1].

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* MEXICO (*H. H. Smith*) ; GUATEMALA, Guatemala city (*Sarg* [1]).

### 9. **Misumenoides bifissus,** sp. n. (Tab. IX. fig. 31, ♂ .)

Total length, ♂, 3·75 millim.

*Hab.* GUATEMALA (*Sarg*).

This species is of the same general character in size, structure, and coloration as *M. annulipes* (O. P.-Cambr.), but the first two pairs of legs are entirely brown and there are no pale annulations. The slightly larger anterior central eyes and the broad bifid tibial spur of the palpus of the male will serve to distinguish *M. bifissus*.

[RUNCINIA.

*Runcinia,* E. Simon, Araign. Fr. ii. p. 254 (1875).

Type *R. lateralis* (C. Koch). Europe.

Anterior row of eyes slightly recurved ; laterals not much, but distinctly larger than centrals. Centrals much closer together than to the laterals. Posterior row recurved, centrals further from each other than from the laterals. Central quadrangle broader than long, narrower in front. Clypeus equal to about three diameters of an anterior central eye. Ocular area produced into a rounded conical prominence between the lateral eyes. Legs i. and ii. almost devoid of spines, except beneath tibiæ and protarsi i. and ii.

*Runcinia* having been incorrectly recorded from Central America, it has been considered advisable to give its characters here, for the sake of comparison ; they are drawn from an adult female of *R. lateralis*. (Tab. IX. figg. 32, 32 *a*.)]

## [MISUMENA.

*Misumena,* Latreille, Nouv. Dict. Hist. Nat. xxiv. p. 135 (1804).

Type *M. vatia* (Clerck). Europe.

Ocular area not exhibiting any distinct angular prominence between the lateral eyes. Legs i. and ii. almost entirely devoid of spines, except beneath tibiæ and protarsi i. and ii. Lateral eyes not separated on distinct tubercles, but united by a convex ridge. Posterior laterals not larger than posterior centrals. Posterior row only moderately recurved. Lateral anteriors not larger than central anteriors. Posterior eyes, centrals and laterals, distinctly smaller than central anteriors.

The characters of this genus also are inserted for the purposes of comparison, and are drawn from an adult female of *M. vatia.* (Tab. IX. figg. 33, 33 *a–d.*)]

## MISUMENOPS, gen. nov.

*Misumena,* Keyserling, Spinn. Amer., Later. p. 78 (part.) (1880).

Type *M. maculisparsus* (Keys.). Taguara.

Similar to the typical *Misumenæ*, except that (in the female) the anterior row of eyes is less strongly recurved, so that a line touching the anterior margin of the laterals would fall slightly within the posterior margin of the centrals (in *Misumena vatia* this line would fall outside a distance of almost half a diameter of a central eye). The lateral anteriors are distinctly larger than the central anteriors. Posterior eyes not smaller than the central anteriors, and the posterior row is more strongly recurved than in *Misumena.*

The males differ from those of *Misumena* in all the above respects, as well as in the fact that the lateral eyes are on two more distinctly separate tubercles. In some species the legs are much longer in proportion than they are in the typical form, *Misumena vatia.* The males of *Misumenops* resemble those of the typical *Diœæ* more than do the females, the only differences being that the lateral posterior eyes are larger than the centrals in *Diœa*, whereas in *Misumenops* they are of the same size, and the central anteriors in the latter are closer together than to the laterals; in the former genus they are further apart than to the laterals.

This is purely a genus of convenience, standing between *Misumena* and *Diœa,* instituted to avoid the necessity of lumping these and several other genera together. In this connection it is significant that Keyserling referred some of the species included in the present genus to *Misumena* (*maculisparsa*, *rosea*, Keys.) and some to *Diœa* (*guianensis*, Tacz., and *damnosa*, *spinosa*, and *pallida*, Keys.).

The following Table includes only those species whose types I have been able to examine. It is possible, though I think improbable, that the females of some of them are indistinguishable by the form of the vulva from others. At any rate, *Misumena pallens* and *M. americana*, Keys., and *M. pascalis* and *M. conjuncta*, O. P.-Cambr., are either respectively one and the same species, or else the form of the vulva is no criterion of specific distinctness:—

*Males.*

A. Apex of the spine of the palpal bulb lying in a concave emargination of the outer side of the tarsal sheath.

1. Spine very broad at the base, compressed, ensiform.

*a.* Spine very stout and laminate at the base and broad, though gradually tapering, to the apex; spiraloid. Tibial spur very long, cylindrical, stout . . . . . *spiralis*, sp. n.

*b*. Spine much less stout, not so spiraloid, nor laminate at its base; its terminal convolution lying on a flattened disc of the bulb, whose plane is at a right angle to the face-plane of the bulb. Tibial spur shorter, concave on the outer side, terminating in a slender curving spine (similar in this respect to *M. spinosus*) . *volutus*, sp. n.

2. Spine simple at its base, filiform, very short, its terminal convolution small and lying in a shallow concavity of the tarsal sheath. Tibial spur shorter, broad, slightly tricuspidate, the apex blunt . *prosper*, O. P.-Cambr.

B. Apex of spine of bulb lying upon (adpressed) the tarsal sheath, not within a concavity. The terminal spine long (much longer than in *M. brevispinus*), springing from the inner side of the bulb at its middle point; the terminal convolution larger. Tibial spur terminating in a short curving stout spine . . . . . *spinosus*, Keys.

*Females.*

A. Vulva with a convex hood-like chitinous rim along the anterior margin.

1. Convex anterior rim much narrower longitudinally, but longer transversely, with respect to the abdomen.

*a*. Separable only by the form of the vulva (see Tab. X. fig. 1) . . [*georgianus*, Keys.]

*b*. Separable only by the form of the vulva (see Tab. X. fig. 10 *b*) . *dubius*, Keys.

2. Convex rim much narrower transversely and longer longitudinally.

*a*. Vulva with a pair of very large spiraloid foveæ, one on each side just behind the anterior convex rim . . . . . *damnosus*, Keys.

*b*. Vulva without large spiraloid foveæ, but with the usual pair of small ones close to the posterior margin . . . . . *pascalis*, O. P.-Cambr.

B. Vulva without hood-like rim, but with a small rectangular or semicircular chitinous plate anteriorly . . . . . *americanus*, Keys.

Note.—*M. georgianus* (Keys.) has not yet been taken in Central America but will most likely occur there, if it indeed be not, as I strongly suspect, the female of *M. volutus*. A figure of the vulva is given for comparison (Tab. X. fig. 1).

### 1. **Misumenops spiralis,** sp. n. (Tab. X. fig. 2, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

Colour similar to that of *M. volutus*, but the carapace has two distinct brown bands on each side of the central line. Palpus: tarsus broad, tibial spur long and stout, palpal spine stout, ensiform, laminated at the base, taking a circular spiraloid curve to its apex.

*Hab.* Guatemala (*Sarg*).

### 2. **Misumenops volutus,** sp. n. (Tab. X. figg. 3, 3 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

Carapace, mandibles, palpi, and legs yellow. Apical fourth of tibiæ i. and ii., apical third of protarsi i. and ii., and tarsus suffused with light red-brown. Sides of carapace also red-brown. Abdomen ochre-yellow, with cretaceous-white spots. Anterior half of the central dorsal area suffused with umber-brown, followed to the spinners by a pair of narrow broken brown bars, converging distally. These bands are composed of a number (6 or 7) of irregular spots, each with a pale oval pearl-like dot in the middle.

The whole body is clothed with scattered spines.

♀, immature, similarly coloured, but without the annulations on legs i. and ii., and in many cases the abdomen is much more generally suffused with brown.

Palpus of male exceedingly like that of *M. roseus* (Keys.), but differing thus: the spine at the apex of the bulb curves over and lies flat on a disc at a right angle to the face-plane of the bulb. (In *M. roseus* the spine is stouter and the tarsus is altogether much larger in proportion.) The tarsus is also larger in the present species, the tibial spur is longer and stouter, the palpal spine is much stouter and laminate at its base. In *M. spinosus* the spine is filiform, not ensiform at its base, and the apex does not lie within a concavity of the tarsal sheath; while in *M. prosper* the spine is quite short.

*Hab.* GUATEMALA (*Sarg*).

No adult females unfortunately were taken, but several immature examples. It is highly probable that this will prove to be the male of *M. georgianus* (Keys.), but the type of that species being a female, it is impossible to come to any definite conclusion as yet on the point.

### 3. **Misumenops prosper.** (Tab. X. figg. 4, 4 *a*, ♂.)

*Synæma prosper*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 213, t. 26. figg. 13, 13 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

Colour the same as in *M. volutus* and *M. spiralis*, except that the suffusion on protarsi i. and ii. extends almost over the whole segment and the tarsi are not suffused. The abdomen is almost unicolorous yellow-ochre. The legs of the first pair are much longer in proportion in this species than in those preceding. Palpus: tibial spur short, broad, somewhat concave on the outer side, obtusely pointed, with an angle about the middle of the outer margin. The palpal spine is very short, its apex taking a small circular curve and lying in a shallow concavity in the outer margin of the tarsal sheath.

*Hab.* GUATEMALA, Cubilguitz (*Sarg*[1]).

### 4. **Misumenops damnosus.** (Tab. X. figg. 5, 5 *a*, ♀.)

*Diæa damnosa*, Keys. Spinn. Amer., Later. p. 114, t. 2. fig. 63 (♀)[1]; N. Banks, Proc. Calif. Acad. Sci. (3) i. p. 264[2].

*Misumena pallida*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 86, t. 11. figg. 10, 10 *a–c* (♀)[3].

*Misumena particeps*, O. P.-Cambr. loc. cit. p. 103, t. 14. figg. 1, 1 *a–c* (♀)[4].

Type of *M. pallida*, ♀, and of *M. particeps*, ♀, in coll. Godman & Salvin. Total lengths, 8 and 9 millim.; of *D. damnosa*, in coll. E. Simon, 7·5 millim.

*Hab.* MEXICO[1] (*Dugès*), Tepic[2]; GUATEMALA, Coban (*Sarg*[4]); PANAMA, Veraguas (*Boucard*[3]).

Not having seen the type of *Diæa damnosa*, Keys., one is not able to be absolutely sure of the identity of this species with *Misumena pallida*, O. P.-Cambr. If not identical, the name *particeps* must be used for the Central-American form, since *Diæa pallida*, Keys., from Colombia, belongs also to the genus *Misumenops*. Our figures are taken from the type of *Misumena particeps*, O. P.-Cambr.

### 5. **Misumenops spinosus.** (Tab. X. fig. 6, ♀.)

*Misumena spinosa*, Keys. Spinn. Amer., Later. p. 81, t. 2. fig. 42 (♂) [1].

*Diæa spinigera*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 241, t. 33. figg. 16, 16 *a–e* (♂) [2].

Type, ♂, of *M. spinosa*, in coll. Keyserling, in Mus. Brit.; that of *D. spinigera* in coll. Godman & Salvin. Total length of *M. spinosa* 3·4 millim.

*Hab.* North America, Georgia and Florida [1].—Mexico, Teapa in Tabasco (*H. H. Smith* [2]).

### 6. **Misumenops pascalis.** (Tab. X. fig. 7, ♀.)

*Misumena pascalis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 85, t. 11. figg. 6, 6 *a–c* (♀) (1891) [1].

*Misumena conjuncta*, O. P.-Cambr. loc. cit. i. p. 86, t. 11. figg. 7, 7 *a–e* (♀) [2].

*Misumena asperata* (Hentz ?), E. Simon, P. Z. S. 1897, p. 876 (♂ ♀) [3].

Type of *M. pascalis*, ♀, and of *M. conjuncta*, ♀, in coll. Godman & Salvin. Total lengths 7 and 5·5 millim. Specimens, ♂ and ♀, identified by E. Simon as *M. asperata* (Hentz), in Mus. Brit.

*Hab.* Panama, Bugaba (*Champion* [1]), Veraguas (*Boucard* [2]).—Antilles, St. Vincent [3].

*Misumena pascalis*, O. P.-Cambr., *M. conjuncta*, O. P.-Cambr., and *M. asperata*, Hentz (sec. Sim.), are identical, so far as the female sex is concerned. No males have as yet been assigned to the first two forms. Simon's identifications of the male and female of *M. asperata* are, however, before me, as also are the female type of *M. georgiana*, Keys., and the male type of *M. spinosa*, Keys. The last-mentioned is not identical with the male of *M. asperata* (Hentz), Sim.; nor is *M. georgiana*, Keys., like the female of *M. asperata* (Hentz), Sim. He is therefore wrong in referring the last two forms to his identification of *M. asperata*, Hentz.

I have no means of ascertaining what the true *M. asperata*, Hentz, is, nor does Simon give any information which might incline one to place confidence in his identification.

### 7. **Misumenops americanus.** (Tab. X. figg. 8, 8 *a*, ♀; 9, 9 *a*, var. ? *pallens*, ♀.)

*Misumena americana*, Keys. Spinn. Amer., Later. p. 85, t. 2. fig. 44 (♀) (1880) [1].

*Misumena pallens*, Keys. loc. cit. p. 96, t. 2. figg. 52, 52 *a* (♀) [2].

*Misumena americana* (Keys.), E. Simon, P. Z. S. 1897, p. 876 (♂ ♀) [3].

Type of *M. americana*, ♀, and of *M. pallens*, ♀, in Mus. Brit. Total length 6·8–7·5 millim.

*Hab.* North America, Southern United States. — Guatemala, Vera Paz [1]. — Colombia [1]; Brazil [1]; Peru [1]; Antilles, St. Vincent [1 3].

Keyserling gives two figures of the vulva of his *Misumena pallens*. The first figure (52) and the type from which it was taken are identical with the type of

*M. americana*, in which the chitinous plate is rectangular, and not semicircular as in *M. pallens*. Amongst the specimens identified by E. Simon as *M. americana*, Keys., from St. Vincent, are examples with the rectangular plate and others with a deeply emarginate semicircular plate. Of this latter form there is also in the Godman and Salvin collection an example from Guatemala. It is quite possible that these three forms of vulva belong to one and the same species and equally possible that they do not. It entirely depends on the constancy of the differences and some distinctive character in the males. We give figures of the vulva of *M. americana* (figg. 8, 8 *a*) and *M. pallens*, Keys. (figg. 9, 9 *a*), for comparison.

### 8. **Misumenops dubius.** (Tab. X. figg. 10, 10 *a*, *b*, ♀.)

*Misumena dubia*, Keys. Spinn. Amer., Later. p. 90, t. 2. fig. 48 (♀) [1]; N. Banks, Proc. Calif. Acad. Sci. (3) i. p. 261 [2].

*Misumena ornata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 119, t. 15. figg. 11, 11 *a–c* (♀), fig. 13 (♀ var.) [3].

Type, ♀, of *M. dubia*, Keys., in coll. Keyserling, Mus. Brit. Total length 9·7 millim.
Type, ♀, of *M. ornata*, O. P.-Cambr., in coll. Godman & Salvin. Total length 9 millim.

*Hab.* Mexico [1], Hacienda de la Imagen and Amula, both in Guerrero (*H. H. Smith* [3]), Tepic [2].

The figures of the eyes are taken from the type of *M. ornata*, that of the vulva from the type of *M. dubia*.

### 9. **Misumenops mexicanus.**

*Misumena mexicana*, Keys. Spinn. Amer., Later. p. 89, t. 2. fig. 47 (♀) [1]; N. Banks, Proc. Calif. Acad. Sci. (3) i. p. 261 [2].

Type, ♀, in coll. E. Simon. Total length 5·2 millim.

*Hab.* Mexico [1], Tepic [2].

I have not seen a specimen of this or of the following species.

### 10. **Misumenops gracilis.**

*Misumena gracilis*, Keys. Spinn. Amer., Later. p. 92, t. 2. fig. 49 (♀) [1]; N. Banks, Proc. Calif. Acad. Sci. (3) i. p. 261 [2].

Type, ♀, in coll. E. Simon. Total length 8·2 millim.

*Hab.* Mexico [1], Tepic [2].

### 11. **Misumenops splendens.**

*Misumena splendens*, Keys. Spinn. Amer., Later. p. 93, t. 2. fig. 50 (♀) [1].

Type, ♀, in coll. E. Simon. Total length 10 millim.

*Hab.* Mexico [1].

### 12. **Misumenops modestus.**

*Misumena modesta*, N. Banks, Proc. Calif. Acad. Sci. (3) i. p. 262, t. 16. fig. 1 (♀) [1].

Type, ♀, in Mus. San Francisco. Total length 5–6·5 millim.

*Hab.* North America, California [1].—Mexico, San Miguel de Horcasitas [1].

### 13. **Misumenops consuetus.**

*Misumena consueta*, N. Banks, Proc. Calif. Acad. Sci. (3) i. p. 262, t. 16. fig. 4 (♀) [1].

Type, ♀, in Mus. San Francisco. Total length 4·6 millim.

*Hab.* Mexico, Tepic [1].

[DIÆA.

*Diæa*, Thorell, Europ. Spid. p. 184 (1869–70).

Type *D. dorsata* (Fabr.). Europe.

Legs i. and ii. with the femora spinose, as well as the tibiæ and protarsi. Tibiæ and protarsi with lateral spines, as well as the paired spines beneath. Posterior row of eyes strongly recurved; posterior laterals distinctly larger than the centrals. Lateral anteriors much larger than the centrals. Lateral eyes seated on two distinct tubercles, of which the anterior tubercles are the larger. Clypeus almost vertical. Tibiæ and protarsi i. and ii. much longer than the carapace. Central posteriors closer together than to the laterals. Central quadrangle a little longer than broad (♂) or as long as broad (♀).

These characters are inserted for the sake of comparison and are drawn from an adult female of *D. dorsata*.]

XYSTICUS.

*Xysticus*, C. Koch, in Herrich-Schäffer's Deutschl. Ins. 1835, p. 129.

Type *X. cristatus* (Clerck). Europe.

Legs i. and ii. with the femora spinose, as well as the tibiæ and protarsi. Tibiæ i. and ii. with five pairs of spines beneath, protarsi with five pairs and three lateral spines on each side. Tarsi i. and ii. with from three to six denticles, and with two rows of bristles beneath, as in *Misumena*. Femur i. with three very distinct spines on the upper surface, besides others. Body clothed with bristles or spines. The legs of the male much more spinose than those of the female.

Eyes of the posterior row equidistant (or sometimes the centrals closer). Central quadrangle broader than long (often as broad as long), not narrower in front. Central anteriors further from each other than from the laterals. Posterior row much more strongly recurved than the anterior.

It is scarcely possible in practice to separate this genus from *Oxyptila*, though the type-species of the two genera are very distinct.

The above diagnosis is drawn from a female of *X. cristatus* (Clerck). In the American forms which I have examined the ocular quadrangle is scarcely broader than long, the central posteriors are distinctly closer, and the spines beneath the tibiæ and protarsi i. and ii. are fewer by one pair.

Of the species recorded from Central America, two, *X. fissilis* and *X. orizaba*, described by N. Banks, are not known to me, while the type of *X. advectus* is not mature: the characters of these cannot therefore be tabulated. The two others, of which the adult males are known, can be separated as follows:—

*Males.*

A. Central process of palpal bulb consisting of two separate branches whose points converge, each spur-like branch taking a slightly spiral curve. Both spurs from certain positions appear to form a kind of forceps . . . . . *pellax*, O. P.-Cambr.

B. Central process of palpal bulb consisting of a single piece, each branch being united in the centre, the points of these diverging and slightly recurved away from each other . . . . . *facetus*, O. P.-Cambr.

*Females.*

A. Vulva consisting of a deep oval cavity, its sides posteriorly somewhat compressed, and more or less straight transversely behind. In the centre of the cavity lies a longitudinal carina sloping gradually to the floor of the cavity on each side . . . . . *pellax*.

### 1. **Xysticus advectus.**

*Xysticus advectus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 71, t. 9. figg. 12, 12 *a* (♀)[1].

Type, ♀, immature, in coll. Godman & Salvin. Total length 5·75 millim.

*Hab.* GUATEMALA, Chicoyoito (*Sarg*[1]).

I have no doubt that this immature example is the young of the female of *X. pellax*. Two adult examples of the latter occur in the collection before me, one of them being in company with an adult male of *X. pellax*, taken at the same time and in the same locality.

### 2. **Xysticus pellax.** (Tab. X. figg. 11, ♂; 12, ♀.)

*Xysticus pellax*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 138, t. 17. figg. 14, 14 *a*, *b* (♂)[1].

Type ♂, and gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5·75, ♀ 6·25 millim.

*Hab.* MEXICO, Amula in Guerrero (*H. H. Smith*[1]); GUATEMALA, Guatemala city (*Stoll*).

This form is very closely allied to *X. ulmi*, C. Koch, from Europe, but in the male the bulb of the palpal organs has a thin chitinous plate lying close behind the central process, which is absent in the European form, and the spider is also larger. Although there can be no reasonable doubt that the female, of which the vulva is here figured for the first time and described in the Table, is identical with the type (♀) of *X. advectus*, yet one must refrain from making *X. pellax* a synonym of *X. advectus*, because the type of the latter is not mature.

The difficulties of identifying fully adult forms are sufficiently great, while absolute certainty in the case of immature forms is not possible. Hence, when a form not fully

adult is made the type of a species, the name given to it becomes a cumbrance on the list, which can neither be omitted as a *nomen nudum*, nor can ever be satisfactorily dealt with.

### 3. **Xysticus facetus.** (Tab. X. fig. 13, ♂.)

*Xysticus facetus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 179, t. 22. figg. 1, 1 *a–e* (♂) [1].

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* MEXICO, Cuernavaca in Morelos (*H. H. Smith* [1]).

### 4. **Xysticus fissilis.**

*Xysticus fissilis*, N. Banks, Proc. Calif. Acad. Sci. (3) i. p. 258, t. 16. fig. 5 (♂).

Type, ♂, in Mus. San Francisco. Total length 4·4 millim.

*Hab.* MEXICO, Tepic [1].

### 5. **Xysticus orizaba.**

*Xysticus orizaba*, N. Banks, Proc. Calif. Acad. Sci. (3) i. p. 260, t. 16. fig. 6 (♂ ♀) [1].

Type ♂, gynetype ♀, in Mus. San Francisco. Total length 9 millim.

*Hab.* NORTH AMERICA, California, Agua caliente [1].—MEXICO, Orizaba [1].

## BASSANIA.

*Bassania*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 249 (1898).

Type *B. æmula*, O. P.-Cambr. Mexico.

This genus falls between *Xysticus* and *Oxyptila*, having the eye-formula of the first, with the general appearance of the second. It is distinguishable from *Xysticus* by its compressed carapace, not convex at the base of the cephalic area. The body is clothed with a dense covering of stout spines, and the legs and spinulation of the tibiæ and protarsi i. and ii. are similar to those of *Oxyptila*.

### 1. **Bassania æmula.**

*Bassania æmula*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 249, t. 31. figg. 5, 5 *a–f* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 6·5 millim.

*Hab.* MEXICO, Orizaba (*H. H. Smith* [1]).

## [OXYPTILA.

*Oxyptila*, E. Simon, Hist. Nat. Araign. i. p. 439 (1864).

Type *O. brevipes* (Hahn). Europe.

Legs i. and ii. with the femora spinose, as well as the tibiæ and protarsi, the latter furnished with lateral spines and also with a paired series of spines beneath. Lateral eyes seated on two distinct tubercles,

the anterior tubercle being largest. Legs shorter, tibiæ and protarsi i. and ii. shorter than the carapace. Tarsal claws i. and ii. with from 3–6 denticles. Tibiæ i. and ii. with 2—2 spines, protarsi i. and ii. with 3—3 spines beneath, and one or more lateral spines. Lateral anterior eyes much larger than the centrals. Posterior row of eyes strongly recurved, laterals distinctly larger than the centrals.

These characters are inserted for the sake of comparison and are drawn from an adult female of *O. brevipes*.]

## SYNEMA.

*Synema* *, E. Simon, Hist. Nat. Araign. i. p. 433 (1864).
*Synæma*, E. Simon, op. cit. ed. 2, i. p. 1036 (1895).

Type *S. globosum* (Fabr.). Europe.

This genus is very similar to *Xysticus*, but the denticles on the anterior tarsal claws are much more numerous and the spines on the first pair of legs are much less developed.

The following Table gives the characters of those species about which I have been able to form a definite opinion. *S. parvulum* (Hentz) and *S. æquinoctiale* (Tacz.) cannot be included, as I have not seen a specimen of either of them; that of *S. putum*, O. P.-Cambr., is immature.

### *Females.*

A. Vulva consisting of a single deep central fovea, with a pair of circular spermathecæ near the posterior margin.

1. Anterior margin of fovea semicircular; posterior margin of vulva chitinous.
   *a*. Vulva with two small black spots immediately behind the fovea. Abdomen with a single large black-brown apical blotch which embraces the postero-lateral and ventral areas; dorsal area with a very broad olive-brown ovate band having a pair of small pale dots, transversely, about the middle; carapace with broad faint brown marginal band; annulations on legs paler . . . . . *affinitatum*, O. P.-Cambr.
   *b*. Abdomen with ventral area almost devoid of black-brown, dorsal area marked with black transverse blotches or broken bands; annulations on legs much darker . . . Var. *profugum*, O. P.-Cambr.
2. Anterior margin of fovea more or less triangular.
   *a*. Abdomen almost entirely black; dorsal area with a few median-lateral orange blotches, the rest black. Carapace dark brown . . . . . Var. *cultum*, O. P.-Cambr.
   *b*. Abdomen almost entirely devoid of dark brown blotches. Carapace orange, with brown margins.
   1. Dorsal area devoid of blotches; ventral, apical, and lateral areas deep brown . . . . . *palliatum*, O. P.-Cambr.

* The original spelling of this generic name has here been retained.

2. Dorsal area of abdomen with a pair of blotches situated transversely at the middle immediately behind a pair of pale spots . . . . . Var. *adjunctum*, O. P.-Cambr.

B. Vulva without deep central fovea, but with a transverse variously curved chitinous plate, followed posteriorly by a pair of duct-orifices and a pair of spermathecal discs.

*a*. Spermathecal discs elongate, kidney-shaped, transversely situated; chitinous plate slightly sinuous on its posterior margin, duct-orifices immediately behind this margin. Abdomen brown, more or less mottled, with a pair of transversely situated shining white oval spots at the middle of the dorsal area . . . . . *bimaculatum*, O. P.-Cambr.

*b*. Spermathecal discs circular, smaller in proportion; chitinous plate deeply emarginate in the middle, in the form of a horseshoe. Abdomen with a large black-brown apical transverse blotch, extending laterally and branching to the spinners; dorsal area yellow, with three transverse rows of small black spots . . . . . *maculosum*.

## *Males.*

A. Bulb compressed, circular, encircled round its external margin by a long slender filiform spine, its point terminating about the middle of the outer side.

i. Abdomen entirely brown or black, mottled in black and pale blotches, or almost entirely pale, but without two conspicuous white spots.

*a*. Tibial spur long, slender, curved, its apex directed forwards . *affinitatum*.

*b*. Tibial spur shorter, straight, truncate at the apex. Base of the tarsus of the palpus with a broad semitransparent process on the outer side crossing in front of the tibial spur . . . . . *madidum*, O. P.-Cambr.

ii. Abdomen brown, with a pair of shining white dots, situated transversely about the middle of the central dorsal line. Base of tarsus of palpus with a sharp spiniform process on the outer side crossing in front of the tibial spurs . . . . . *bimaculatum*.

B. Bulb compressed, circular, but the spine stouter and more flattened.

*a*. Spine very stout and flat, terminating at the apex of the bulb in a broad bifid tip. Abdomen pale, with three rows of four larger black spots and a transverse bar near the spinners . . . . . *maculosum*, O. P.-Cambr.

*b*. Spine stout, flat, sinuous and somewhat spiraloid, encircling only the central area of the bulb, terminating about the middle of the outer side in a stout blunt point . . . . . *socium*, O. P.-Cambr.

I have little doubt myself that *S. affinitatum*, *S. profugum*, and *S. cultum* are merely varieties of one and the same species, namely *S. affinitatum*, O. P.-Cambr. The semicircular anterior margin of the fovea is present with slight modifications in the females of all of them. The absence or obsolescence of the spermathecal discs and pair of duct-orifices in some examples is due to various conditions of maturity and other causes. Whether *S. adjunctum* may be a good species, I cannot say without a great deal more material; in this species and in *S. palliatum* the spermathecal discs are closer together, and the anterior margin of the fovea has lengthened and become acutely triangular. This, however, may only be an individual variation; for *S. cultum* offers us an example of an intermediate stage. The near approach of the sperm-discs would directly follow from the elongation of the vulva.

*S. affinitatum* and *S. palliatum* have nevertheless been regarded as two possible species, with the others as varieties of one or the other of these.

The females, types or gynetypes, of *S. politum*, *S. interruptum*, and *S. putum* are immature, so that no definite conclusion can be arrived at concerning them. I have not the least doubt that the males, types, of *S. politum* and *S. affinitatum* are identical forms. A figure of the eyes of the European type, *S. globosum* (Fabr.), is added for comparison [Tab. X. fig. 14 (♀)].

1. **Synema affinitatum.** (Tab. X. figg. 15, ♀; 16, var. *cultum*, ♀; 17, var. *politum*, ♂.)

*Synæma affinitata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 82, t. 10. figg. 12, 12 *a–d* (♂), 13, 13 *a*, *b* (♀) [1].

Var. *Synæma profuga*, O. P.-Cambr. loc. cit. p. 84, t. 11. figg. 3, 3 *a*, *b* (♀) [2].

Var. *Synæma culta*, O. P.-Cambr. loc. cit. p. 119, t. 15. figg. 15, 15 *a–c* (♀) [3].

*Synæma interrupta*, O. P.-Cambr. loc. cit. p. 120, t. 15. figg. 9, 9 *a–d* (♂), 10, 10 *a* (♀) [4].

*Synæma polita*, O. P.-Cambr. loc. cit. p. 241, t. 33. figg. 14, 14 *a–e* (♂), 15, 15 *a* (♀) [5].

Type ♂, gynetype ♀, of *S. affinitatum*: total length, ♂ 3·5, ♀ 7 millim.; type, ♀, of *S. profugum*, total length 5·75 millim.; type, ♀, of *S. cultum*, total length 5·75 millim.; type, ♂, of *S. interruptum*, total length 4 millim.; type, ♂, of *S. politum*, total length 3 millim.: all in coll. Godman & Salvin.

*Hab.* Mexico [3], Atoyac in Vera Cruz [5], Teapa in Tabasco [4] (*H. H. Smith*); Guatemala, Chiacam [♀] and Cahabon [♂] in Vera Paz (*Sarg* [1]); Panama, Bugaba (*Champion*).

We figure the vulva of the female type of *S. affinitatum* (fig. 15), also that of the var. *cultum* (fig. 16), and the male palpus of *S. politum* (fig. 17).

2. **Synema palliatum.** (Tab. X. fig. 18, ♀.)

*Synæma palliata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 81, t. 10. figg. 8, 8 *a*, *b* (♀) [1].

Var. *Synæma adjuncta*, O.-P. Cambr. loc. cit. p. 84, t. 11. figg. 1, 1 *a*, *b* (♀) [2].

Types, ♀, of *S. palliatum*, total length 4·5 millim.; of *S. adjunctum*, total length 6·25 millim.: both in coll. Godman & Salvin.

*Hab.* Panama, Bugaba [1], Volcan de Chiriqui [2] (*Champion*).

### 3. **Synema bimaculatum.** (Tab. X. fig. 19, ♀.)

*Synæma bimaculata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 71, t. 9. figg. 7, 7 *a–d* (♀), 8, 8 *a*, *b* (♂)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3, ♀ 4·5 millim.

*Hab.* GUATEMALA, Chicoyoito, Cahabon, Chichochoc, Coban (*Sarg* [1]).

### 4. **Synema maculosum.** (Tab. X. figg. 20, ♂; 21, ♀.)

*Synæma maculosa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 81, t. 10. figg. 10, 10 *a* (♂ immature), t. 11. figg. 2, 2 *a–e* (♂ adult)[1].

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* GUATEMALA, San Juan Chamelco in Vera Paz (*Sarg* [1]); PANAMA, Bugaba (*Champion*).

### 5. **Synema madidum.**

*Synæma madida*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 153, t. 19. figg. 7, 7 *a–d* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* MEXICO, Cuernavaca in Morelos (*H. H. Smith* [1]).

This species differs from *S. affinitatum* only in the shorter, more truncated upper tibial spur, and this peculiarity may be merely due to accidental mutilation.

### 6. **Synema socium.** (Tab. X. fig. 22, ♂.)

*Synæma socia*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 83, t. 11. figg. 4, 4 *a–d* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 3·25 millim.

*Hab.* PANAMA, Bugaba (*Champion* [1]).

### 7. **Synema putum.**

*Synæma puta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 80, t. 10. figg. 9, 9 *a*, *b* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

*Hab.* GUATEMALA, Tikal (*Sarg* [1]).

This specimen is immature.

### 8. **Synema parvulum.**

*Thamisus parvula*, Hentz, Spid. U. S. p. 80, t. 10. fig. 8, t. 18. fig. 40 (♀)[1].

*Synæma parvula*, Keys. Spinn. Amer., Later. p. 57, t. 1. fig. 28 (♀)[2].

*Hab.* NORTH AMERICA [1].—MEXICO [2].

I do not know this spider. The form referred by Keyserling to *S. parvulum* is identical with *S. maculosum*, O. P.-Cambr., ♀.

### 9. Synema æquinoctiale.

*Xysticus æquinoctialis*, Tacz. Horæ Soc. Ent. Ross. ix. p. 87 (1872) (♀)[1].

*Synema æquinoctialis*, Keys. Spinn. Amer., Later. p. 71, t. 2. fig. 37 (1880) (♀)[2]; N. Banks, Proc. Calf. Acad. Sci. (3) i. p. 261[3].

Type, ♀, in Mus. Univ. Warsaw.

*Hab.* Mexico, Tepic[3].—Guiana[1 2].

I have not seen a specimen of this spider.

## PARASYNEMA, gen. nov.

Type *P. cirripes* (O. P.-Cambr.). Mexico and Guatemala.

Eyes as in *Xysticus*; central quadrangle broader than long, not narrower in front. Posterior row recurved; eyes equidistant, or centrals further apart and smaller than the laterals. Anterior row recurved; centrals much smaller than the laterals and much further from each other than from the laterals. Clypeus equal to more than four diameters of an anterior central eye. Femora i. with a few fine long bristles, none on ii.; tibiæ i. and ii. with 2—2 long bristles and two short apical spines. Protarsus i. with 2—2—2—2—2 short, stout spines beneath; no lateral spines; protarsus ii. with 2—2—2—2 spines beneath. The body and legs of the male are much more densely clothed with stout bristles than in the same sex of *Xysticus*.

### 1. Parasynema cirripes. (Tab. X. fig. 23, ♀.)

*Synæma cirripes*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 79, t. 10. figg. 11, 11 *a–d* (♂)[1], and p. 180, t. 22. figg. 2, 2 *a–c* (♀)[2].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4·5, ♀ 7 millim.

*Hab.* Mexico, Cuernavaca in Morelos (*H. H. Smith*[2]); Guatemala, Magdalena near Antigua (*Sarg*[1]).

### 2. Parasynema adustum.

*Xysticus adustus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 70, t. 9. figg. 11, 11 *a* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 5·75 millim.

*Hab.* Guatemala, Coban (*Sarg*[1]).

## TMARUS.

*Tmarus*, E. Simon, Araign. Fr. ii. p. 259 (1875).

Type *T. piger* (Walck.). Europe.

Mandibles plain, without teeth. Labium nearly three times longer than broad. Anterior row of eyes straight by the centre of the laterals and the posterior margin of the centrals; eyes equidistant, laterals much larger. Posterior row slightly recurved; centrals one-fourth closer together than to the laterals. Lateral posteriors distinctly larger than the centrals. Clypeus as high as the length of the central quadrangle and very prominent.

Lateral eyes on two distinct tubercles, the posterior tubercles being the largest. Carapace straight above, abruptly inclined behind. Central quadrangle square (or broader than long), but narrower in front. Legs spinose; i. and ii. equal in length. Tibiæ i. and ii. with 2—2 spines at apex beneath; protarsi i. and ii. with 2—2—2—2 spines beneath, as well as lateral spines. Tarsi with a long narrow smooth central area beneath flanked by a row of setæ on each side. Tarsal claws toothed throughout.

These characters are drawn from the adult female of the European *T. piger* (Tab. X. fig. 24).

*Males.*

A. Tibia of palpus with two spurs, an upper and lower, on the outer side.

i. Upper spur plain, without any basal spur on the inner, or lower, side, stout, sinuous. Upper spur stout, gradually attenuate and slightly sinuous to the apex. Lower spur curved upward, not enlarged, and slightly bifid at the apex. Bulb with a black hammer-headed process directed downward and backward from the centre. A stout black process is directed from the apex of the bulb towards the point of the upper tibial spur, but there is no spine as in *T. studiosus* in a similar position, neither is there any spur on the inner side of the bulb at its base. Tibia very broad . . . . . *jocosus*, O. P.-Cambr.

ii. Upper spur with another short sharp spur on the inner, or lower, side, about one-third from the base. Upper spur very slender towards its apex, but enlarged at the base. Lower spur short, curved upward, enlarged, slightly concave and bilobate at its apex. Bulb with a short sharp black spine on the outer side, its point directed backward. Inner basal angle furnished with a stout black cusp . . . . . *studiosus*, O. P.-Cambr.

B. Tibia of palpus with only one spur on the outer side, the lower one. The upper represented only by an enlargement of the upper anterior angle.

i. Bulb not convoluted in the centre; its apex bearing a stout black somewhat bifurcate process, and without any central hammer-headed process . . . . . *intentus*, O. P.-Cambr.

ii. Bulb convoluted in the centre, bearing a stout hammer-headed chitinous process directed backward and downward. Bulb encircled by a long fine spine, whose filiform apex curls in over the bulb from the outer side . . . . . *pauper*, O. P.-Cambr.

*Females.*

These can be separated by the form of the vulva, though it is difficult to give a detailed intelligible account in words of the structure.

A. Vulva with a central chitinous wedge-shaped tongue.

1. Tongue large and long, extending from the anterior margin to the posterior. The tongue is not raised from the surface posteriorly. *studiosus*.

2. Tongue very small, inconspicuous, extending over about one-third of the length of the epigynal area. A kidney-shaped spermatheca lies on each side posteriorly, the apex of the tongue falling just between the anterior ends of the spermathecæ. The tongue is raised from the surface posteriorly . . . . . *intentus*.

B. Vulva without any central tongue.
  i. Vulva consisting only of a pair of small orifices connected with a pair of spermathecæ.
    *a*. Spermathecæ appearing as circular discs . . . . . *ineptus*, O. P.-Cambr.
    *b*. Spermathecæ appearing as elongate sacs . . . . . *mundulus*, O. P.-Cambr.
  ii. Vulva more elaborate in structure.
    *a*. Vulva consisting of a pair of bisymmetrical semicircular areas, separated by a narrow smooth space, having a deep concavity anteriorly.
      1. Anterior concavities spiraloid . . . . . *decens*, O. P.-Cambr.
      2. Anterior concavities circular . . . . . *jocosus*.
    *b*. Vulva consisting of a pair of circular bisymmetrical dark chitinous valves, separate from the surface along their inner and posterior margins . . . . . *corruptus*, O. P.-Cambr.

### 1. **Tmarus studiosus.** (Tab. X. fig. 25, ♀.)

*Tmarus studiosus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 97, t. 12. figg. 6, 6 *a–c* (♀), 7, 7 *a–d* (♂) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4·5, ♀ 6–7 millim.

*Hab.* PANAMA, Bugaba (*Champion* [1]).

### 2. **Tmarus intentus.** (Tab. X. figg. 26, ♂; 27, ♀.)

*Tmarus intentus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 96, t. 13. figg. 1, 1 *a–d* (♂), 2, 2 *a–c* (♀) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3·5, ♀ 4·5 millim.

*Hab.* GUATEMALA, Chiacam (*Sarg*: ♂ [1]); PANAMA, Bugaba (*Champion*: ♀).

### 3. **Tmarus ineptus.** (Tab. X. fig. 28, ♀.)

*Tmarus ineptus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 94, t. 13. figg. 3, 3 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* PANAMA, Bugaba (*Champion*).

### 4. **Tmarus mundulus.** (Tab. X. fig. 29, ♀.)

*Tmarus mundulus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 95, t. 12. figg. 11, 11 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 3·75 millim.

*Hab.* PANAMA, Bugaba (*Champion* [1]).

### 5. **Tmarus decens.** (Tab. X. fig. 30, ♀.)

*Tmarus decens*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 98, t. 12. figg. 9, 9 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 7·75 millim.

*Hab.* PANAMA, Bugaba (*Champion* [1]).

6. **Tmarus jocosus.** (Tab. X. fig. 31, ♀.)

*Tmarus jocosus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 288, t. 32. figg. 11, 11 *a–d* (♂), 12, 12 *a*, *b* (♀) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5·75, ♀ 7 millim.

*Hab.* Costa Rica (*Sarg* [1]).

7. **Tmarus corruptus.** (Tab. X. fig. 32, ♀.)

*Tmarus corruptus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 95, t. 12. figg. 10, 10 *a–c* (♀) [1].

*Tmarus mendax*, O. P.-Cambr. loc. cit. p. 139, t. 18. figg. 9, 9 *a–c* (♀) [2].

Type, ♀, of *T. corruptus*, and of *T. mendax*, ♀ juv., in coll. Godman & Salvin. Total length 7 millim.

*Hab.* Mexico, Venta de Zopilote in Guerrero (*H. H. Smith* [2]); Panama, Bugaba (*Champion* [1]).

*T. mendax* is an immature female of *T. corruptus*.

8. **Tmarus pauper.**

*Tmarus pauper*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 96, t. 12. figg. 8, 8 *a–d* (♂) [1].

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Panama, Bugaba (*Champion* [1]).

## Subfam. *STEPHANOPSINÆ*.

Mandibles furnished with teeth on both the margins of the fang-groove. Labium and maxillæ normal, not acuminate at the apex. Legs i. and ii. almost equal in length.

### Genera.

AA. Protarsi i. and ii. with a central apical spine beneath.

*a*. Central posterior eyes closer to each other than to the laterals. Central quadrangle much longer than broad, scarcely narrower in front. Eyes much more closely grouped; anteriors scarcely over one diameter of the centrals apart. Ocular area uniformly convex, without a central groove dividing it into two lobes . . . . . [Stephanopoides, Keys.]

*b*. Central posterior eyes much further from each other than from the laterals. Central quadrangle as broad as long, much narrower in front. Eyes much more widely grouped; anteriors at least two diameters of the centrals apart. Ocular area with a shallow longitudinal central groove dividing it into two lobes . . . . . Parastephanops, gen. nov.

BB. Protarsi i. and ii. without any central apical spine.

C. Abdomen with three long acanthoid median prominences. Tarsal claws of legs i. and ii. with six denticles on the outer, ten or eleven on the inner claw, situated towards the middle of the claw. Body and legs hirsute, thickly clothed with numerous bisegmentate and unisegmentate spines. Carapace compressed, not acuminate in the centre. Posterior row of eyes procurved; lateral posteriors raised on the base of a horn-like prominence. Anterior row of eyes strongly recurved, as in *Epicadus*, centrals slightly larger than the laterals. Clypeus equal to two diameters of an anterior central eye . . . . . EPICADINUS, E. Sim.

D. Abdomen with from five to seven prominences, differently disposed. Tarsal claws of legs i. and ii. with one or two (females), or three or four (males), denticles only towards the base of the claw. Body and legs not hirsute, clothed with scattered spines, often bisegmentate, only.

I. Legs i. shorter in proportion; tibia i. shorter than the carapace.

i. Femora i. and ii. not furnished with spinigerous tubercles on the dorsal surface or in front. (Ocular area with or without horn-like prominences.)

1. Carapace acuminate at the central thoracic stria. Ocular area developed on each side to form a horn-like prominence. Anterior row of eyes so strongly recurved that it forms a quadrangle, whose anterior side is only slightly narrower. Central anteriors one and a half diameters from the laterals. The central and lateral anteriors and the lateral posteriors, viewed from in front, form a vertical oblique line. Posterior row of eyes more strongly procurved. Abdomen with two anterior, three median, and two posterior, long, erect prominences . . . . . [EPICADUS, E. Sim.]

2. Carapace not acuminate behind. Ocular area not developed on each side. Anterior row of eyes less strongly recurved, forming a quadrangle much narrower in front. Central anteriors scarcely one diameter from the laterals. The central and lateral anteriors form, with the lateral posterior eyes, a more decidedly oblique, converging line, viewed from in front. Posterior row of eyes scarcely procurved, straight in the male sex. Abdomen with two very slight anterior, three median, and sometimes (*Tobias*) two lower posterior, very slight prominences, none of them erect.

*a*. Area between the anterior central eyes bearing a pair of bisegmentate spiniform processes or sensory hairs. Abdomen, in the female, with two inconspicuous anterior, and three median prominences, the latter especially armed with spinigerous denticles . . . . ONOCOLUS, E. Sim.

*b*. Area between the anterior central eyes without spiniform processes. Abdomen, in the female, with two inconspicuous anterior, three median, and two inconspicuous lower posterior prominences . . TOBIAS, E. Sim.

**ii.** Femora i. and ii. furnished with one or two pairs of stout spinigerous tubercles on the dorsal surface, and two single ones along the anterior side. (Ocular area slightly raised in the form of a corneous ridge, or with a more highly developed horn, behind the lateral anterior eyes.)

*a*. Posterior row of eyes straight. Central posteriors much further from each other than from the laterals, and slightly larger. Femora i. and ii. with a stout spur on each side of the apex. Tibiæ i. and ii. with 2—2—2 spines; protarsi i. and ii. with 2—2—2 spines beneath; no lateral spines. Tibiæ and protarsi i. and ii. enlarged and compressed, these, as well as the patella, flattened above, forming a low carina on each side. Abdomen with seven prominences, as in *Tobias*. Ocular area produced, forming a corneous ridge behind the anterior lateral eyes . . . . . [METATOBIAS, gen. nov.]

*b*. Posterior row of eyes strongly recurved; centrals much closer to each other than to the laterals, and smaller. Femora i. and ii. without spurs at the apex. Tibiæ i. and ii. with 2—2—2—2 spines; protarsi i. and ii. with 2—2—2—2 spines beneath; no laterals. Tibiæ and protarsi i. and ii. scarcely enlarged or compressed, their margins not carinate. Tibiæ i., ii., iii., and iv. bearing at the base above a depression set with a cluster of black clavate sensory hairs. Abdomen with two median prominences only. Ocular area produced behind the anterior lateral eyes to form two distinct conical horns . . . . . PARATOBIAS, gen. nov.

**II.** Legs i. and ii. longer in proportion; tibia i. longer than the carapace.

**A.** Legs i. much longer and stouter than legs ii. Femora i. and ii. with an apical spur on each side. (Posterior row of eyes recurved. Abdomen with two anterior and two median posterior tubercular prominences.) . . . . . [CŒNYPHA, E. Sim.]

B. Legs i. and ii. approximately equal in length and stoutness. Femora i. and ii. without apical spurs.

i. Anterior row of eyes very slightly recurved. Tibiæ i. and ii. with 2—2—2—2 spines; protarsi i. and ii. with 2—2—2 spines beneath, and lateral spines on both. Abdomen without prominences, but with eight low convex tubercles in two longitudinal rows . . . . . ISALOIDES, gen. nov.

ii. Anterior row of eyes very strongly recurved. Tibiæ i. and ii. with 2—2—2—2 spines; protarsi i. and ii. with 2—2—2—2—2 spines beneath, but no laterals except on the apex of protarsi i. and ii. Abdomen with two anterior and two median-posterior tubercular prominences . . . . . [SIDYMA, E. Sim.]

Some of the genera, *Stephanopoides*, *Epicadus*, *Metatobias*, *Cœnypha*, and *Sidyma*, which enter into this Table have as yet no representative species from Central America. They find a place on account of their very close relationship with the others, and because representatives are almost certain to be found sooner or later.

In identifying these genera and differentiating them, general characters will be found more reliable, perhaps, than those drawn from the relative position of the eyes or, indeed, any single character abstracted from the rest. The form of the abdomen, for instance, will give a good clue to the generic group to which any spider belongs. But the whole group really needs to be taken in hand and thoroughly diagnosed comparatively in connection with examples from all parts of the world.

## EPICADINUS.

*Epicadinus*, E. Simon, Hist. Nat. Araign. (2) i. p. 1052 (1895).

Type *E. trispinosus* (Tacz.). Tropical America.

Anterior row of eyes strongly recurved, centrals very slightly larger than the laterals; posterior row procurved; ocular region acuminate, bifid. Carapace not acuminate in the middle. Body and legs hirsute, thickly clothed with bisegmentate and unisegmentate spines. Clypeus equal to two diameters of an anterior central eye. Abdomen with three long spiniform prominences.

Two species only of this genus are recorded.

### 1. **Epicadinus trifidus.** (Tab. X. figg. 33, 33 *a*, ♀.)

*Eripus trifidus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 121, t. 15. figg. 12, 12 *a–g* (♀) [1].

Type, ♀, in coll. Godman. & Salvin. Total length 6·5 millim.

*Hab.* MEXICO, Atoyac in Vera Cruz (*H. H. Smith* [1]).

[EPICADUS.

*Eripus*, Walckenaer, Ann. Soc. Ent. Fr. 1833, p. 438 (nomen præocc. *).
*Epicadus*, E. Simon, Hist. Nat. Araign. (2) i. p. 1052 (1895).
Type *E. heterogaster* (Guérin). Tropical America.

No representative of this genus has yet been taken in Central America, but since some are sure to be discovered in the tropical regions, such as Panama, the characters are inserted in the Table and figures of them in the Plate [Tab. X. figg. 34, 34 *a–c* (♀)]. They will also prove useful for comparison with those of closely allied genera.]

## ONOCOLUS.

*Onocolus*, E. Simon, Hist. Nat. Araign. (2) i. p. 1053 (1895).

Type *O. echinatus* (Tacz.). Cayenne.

Legs comparatively short, stout, and compressed; tibiæ, protarsi, and tarsi more or less incrassate. Protarsi i. and ii. with 2—2—2, tibiæ with 2—2—2—2, spines beneath, no laterals. Anterior row of eyes strongly recurved; posterior row straight. Carapace scarcely longer than broad. Anterior lateral eyes distinctly larger than centrals. Femora not incrassate, nor tuberculate on the dorsal surface. Carapace and body very much compressed; ocular area produced somewhat conically behind the anterior lateral eyes. Two bisegmentate spines are situated just behind the middle between the anterior central eyes.

The basal segment in the male is much longer in proportion than in the female. The tibial and protarsal spines are much longer than in the allied groups and are enclosed in a basal socket, hinged and capable of being raised and depressed.

The body and legs, in both sexes, are clothed with so-called sensory hairs, of various sizes and types, consisting of a stouter chitinous basal sheath and a longer or shorter, a stouter or more slender, movable terminal sensory segment. The bulb at the base of this terminal portion is distinctly seen to be connected by muscles and nerves with the body-tissues, through the cylindrical basal sheath. Colulus absent in both sexes.

Four or five species only, which fall into this genus, have been recorded, and all from the Neotropical region:—*O. echinatus* (Tacz.), *O. pentagonus* (Keys.), *O. compactilis*, E. Sim., *O. stolzmanni* (Keys.), and another, undescribed, taken by the author on the Lower Amazons.

### 1. **Onocolus pentagonus.** (Tab. X. figg. 35, 35 *a*, *b*, ♂; 36, 36 *a–f*, ♀.)

*Stephanopis pentagona*, Keys. (misprinted *Tacz.*), Spinn. Amer., Later. p. 185, t. 4. fig. 102 (1880) (♂)[1].

Type, ♂, in Mus. Univ. Warsaw. Total length 3·5 millim.
Deuterotype, ♀, in coll. Godman & Salvin.

*Hab.* Panama, Bugaba (*Champion*).—Peru, Valmal[1].

* Dejean, Coleoptera, 1829.

The vulva of the female, and the palpus of the male, will be found figured on the Plate. Several males and females occur in our collection. and the tibial spurs of the palpi of the former are identical with the figure given by Keyserling, referred to above. There is no reasonable doubt, failing an examination of the type in the Warsaw University, that these examples are identical with Keyserling's species.

## TOBIAS.

*Tobias*, E. Simon, Hist. Nat. Araign. (2) i. p. 1053 (1895).

Type *Stephanopis camelinus*, O. P.-Cambr. Amazons.

Characters as in *Onocolus*, except that the carapace and body are more convex, the posterior row of eyes is procurved, and the ocular area is not produced conically behind the anterior lateral eyes. Colulus absent in both sexes.

Three or four species referable to this genus are known, all of them from Tropical America. The species, *T. rugosus* (Tacz.), to which I refer the males and females from Central America, appears to have a very wide range, extending all across the continent from Peru to the Atlantic.

### 1. **Tobias rugosus.** (Tab. X. figg. 37, ♂; 38, 38 *a–c*, ♀.)

*Thomisus rugosus*, Tacz. Horæ Soc. Ent. Ross. ix. p. 95 (♂ ♀) (1872) [1].

*Stephanopis rugosa*, Keys. Spinn. Amer., Later. p. 177, t. 4. figg. 97, 97 *a* (♀), 97 *b*, *c* (♂) [2].

Type ♂, gynetype ♀, in Mus. Univ. Warsaw. Total length, ♂ 2·5, ♀ 8 millim.

*Hab.* Panama, Bugaba (*Champion*).—South America, Cayenne [1], Pará [2], Peru.

## [METATOBIAS, gen. nov.

Type *M. stelloides* (Walck.). Tortola, West Indies.

The type of *Metatobias* is the spider described by Keyserling as *Stephanopis stelloides* (Walck.). It can be distinguished from the genus *Tobias* by the spinigerous tubercles on femora i. and ii. (as also in *Paratobias*); and also by the stout spines on the apex of these femora, as well as by the fact that the patellæ i. and ii. are carinate on each side. It may be separated from *Paratobias* by the spines on the apex of its femora i. and ii.

Tibiæ i. and ii. are incrassate, with a pair of deep depressions on each side towards the base. Tibiæ i. and ii. with 2—2—2, protarsi i. and ii. with 2—2—2 spines beneath, but no laterals.

Tarsi short and incrassate. Colulus absent.

The occurrence of this spider in the West Indies points to the high probability that other examples of the genus are to be found in Central America. Its characters therefore are diagnosed under a new generic name, because *S. stelloides*, Walck., does not belong to *Stephanopis*, O. P.-Cambr. [Ann. & Mag. Nat. Hist. (4) iii. p. 60 (1869)], the type of which is *S. altifrons*, from S. Australia. The details of structure are figured on Tab. XI. figg. 1, 1 *a–d* (♀).

I strongly suspect that the greater part of Nicolet's Chilian species belong to the same genus. This conclusion may, of course, have to be reversed eventually.]

## PARATOBIAS, gen. nov.

Type *P. championi*, sp. n. Central America.

Similar to *Metatobias*, but with the central posterior eyes slightly smaller than the laterals, and much closer to each other than to the laterals. Femora i. and ii. with dorsal tubercles, but no apical spurs. Tibiæ i. and ii. not incrassate, with 2—2—2—2 spines; protarsi i. and ii. with 2—2—2—2 spines beneath, no laterals. Tarsi short and incrassate. Colulus absent.

This genus is based on a single species from the State of Panama.

### 1. **Paratobias championi,** sp. n. (Tab. XI. figg. 2, 2 *a–e*, ♀.)

Type, ♀, in coll. Godman. & Salvin. Total length 6 millim.

Colour piceous; body and legs clothed with short white pubescence; abdomen with, in addition, numerous bacilliform hairs.

Carapace longer than broad, narrowed at the ocular area. The latter prominent, raised, developed into a conical horn behind the lateral anterior eyes, leaving a deep cleft between. Posterior row of eyes recurved, the posterior margin of the laterals falling just behind the centre of the centrals. Centrals smaller and closer to each other, one and a half diameters apart, than to the laterals, two diameters from them. Anterior row recurved, centrals very minute, further from each other than from the laterals, which are very much larger. Clypeus equal to more than four diameters of an anterior central eye.

Femora i. and ii. incrassate behind, bearing two pair of spinigerous tubercles on the dorsal surface and two along the anterior margin, but without apical spurs. Patella and tibiæ i. and ii. compressed, and grooved above; protarsi i. and ii. compressed above but not grooved.

Tarsi i. and ii. short and incrassate.

Vulva consisting of a large circular-oval concave chitinous disc, slightly rebordered along the circumference and more prominent in the centre of the posterior margin.

*Hab.* Panama, Bugaba (*Champion*).

## [POTHÆUS.

*Pothæus*, Thorell, Descr. Cat. Spid. Burma, p. 275 (1895).

Type *P. armatus*, Thor., in Mus. Brit. Burmah.

The characters of a single immature female spider from Guatemala run so close to those of the type of *Pothæus* that I am unable to separate them generically. The occurrence of this form is recorded as an interesting fact, though the immaturity of the specimen precludes one from describing the species.]

## [STEPHANOPOIDES.

*Stephanopoides*, Keyserling, Spinn. Amer., Later. p. 166 (1880).

Type *S. brasiliana*, Keys. Brazil.

Although no species of *Stephanopoides* has occurred as yet in Central America, it is necessary to insert figures of its distinguishing characters [Tab. XI. figg. 3, 3 *a* (♂)].

The spider referred to it in Vol. I. of this subject belongs to the following genus, *Parastephanops*.]

## PARASTEPHANOPS, gen. nov.

Type *P. cognatus* (O. P.-Cambr.). Central America.

Eye-group much narrower than the front of the carapace. Ocular area * slightly bilobed, the two lateral eyes on each side, including one of the central posteriors, situated on a separate lobe. Anterior row of eyes recurved, laterals much larger than the centrals; centrals closer together. Posterior row much broader than the anterior, recurved, subequal; centrals further from each other than from the laterals. Ocular quadrangle broader than long (it appears longer than broad—see note on measurements), much narrower in front.

Clypeus as high as two diameters of an anterior central eye. Mandible with one long and three or four smaller teeth. Tarsi i. and ii. not scopulate, nor with two rows of setæ on each side. Claws toothed throughout, with from 10 to 12 teeth.

Labium as broad as long, almost square, squarely truncate at the apex. Maxillæ short, inclined, dilated at the apex. Tibiæ i. and ii. with 2—2—2—2 spines beneath and three lateral spines; protarsi i. and ii. with 2—2—2 spines beneath, two laterals and a single subapical spine.

This genus may be distinguished from *Stephanopoides* by the characters given in the Table, *anteà*, p. 156.

### 1. **Parastephanops cognatus.** (Tab. XI. fig. 4, ♀.)

*Stephanopoides cognata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 104, t. 14. figg. 2, 2 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 7·75 millim.

*Hab.* Panama, Bugaba (*Champion*), Veraguas (*Boucard*[1]).

## ISALOIDES, gen. nov.

Type, adult ♀, *I. putus* (O. P.-Cambr.). Central America.

Upper and lower margins of the fang-groove toothed. Posterior row of eyes wider than the anterior; both rows recurved, posterior strongly, anterior slightly. Anterior laterals very much larger than any of the other eyes, three times the diameter of the anterior centrals. Posterior laterals larger than the posterior centrals. Ocular quadrangle much longer than broad, narrower in front, anterior centrals much smaller than posterior centrals. Clypeus equal to four diameters of an anterior central eye, obliquely inclined backwards. Eyes of posterior row equidistant. Central anteriors further from each other (2 diameters) than from the laterals (1½ diameters). Ocular area scarcely narrower than the front of the caput. Legs of first and second pairs subequal. Colulus absent.

The characters given above are drawn from an adult female, the type of *Diæa puta*, O. P.-Cambr., which is identical with *Erissus pustulatus*, O. P.-Cambr., the latter being an immature specimen of the same sex.

### 1. **Isaloides putus.** (Tab. XI. figg. 5, 5 *a–c*, ♀.)

*Diæa puta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 85, t. 11. figg. 5, 5 *a–c* (♀ adult) (1891)[1].

*Erissus pustulatus*, O. P.-Cambr. loc. cit. i. p. 271, t. 35. figg. 2, 2 *a–d* (♀ juv.)[2].

Types, ♀, of *D. puta* and *E. pustulatus* in coll. Godman & Salvin. Total length 6 millim.

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* It is exceedingly difficult to estimate correctly the measurements of the ocular quadrangle, more especially when it is narrower on one side, in front or behind. In these cases, when really as broad as long, it looks distinctly longer than broad.

*Hab.* Mexico, Atoyac in Vera Cruz (*H. H. Smith* [2]); Panama, Bugaba (*Champion* [1]).

I strongly suspect that this species is identical also with *Hedana octoperlata*, E. Simon [Ann. Soc. Ent. Belg. xxxix. p. 439 (1895)]. I here assume that it is at least congeneric with it, and in this case it cannot be *Erissus*, Simon.

But whether this is the case or not, I cannot regard them as congeneric with *Hedana gracilis*, L. Koch, judging from his figure (Arachn. Austr. t. 12. fig. 1). Moreover, M. Simon says [Hist. Nat. Araign. (2) i. p. 1039] that in *Hedana* the area of the central eyes is much longer than broad, and narrower in front, whereas in Koch's figure of the eyes of *Hedana gracilis*, the type of the genus, the ocular quadrangle is square.

It is necessary, therefore, to substitute a new generic term for *Diæa puta* (=*Erissus pustulatus*), O. P.-Cambr.

This species is much more likely to fall near *Isala*, L. Koch; but having no examples of that genus at hand, it is not possible to give an opinion which is likely to be of any value. The figure, however, of the eyes of *Isala punctata*, L. Koch, agrees very closely with the position of those in *Diæa puta*, O. P.-Cambr.

## Subfam. *APHANTOCHILINÆ*.

Labium exceedingly narrow. Sternum very short, not produced posteriorly behind the coxæ of the third pair of legs. The carapace and abdomen are more or less clothed with cusps or spinigerous tubercles, while the anterior portion of the carapace is developed laterally into a horn on each side. Colulus absent or almost obsolete. Legs almost entirely devoid of spines; femora covered with scattered tubercles.

The three genera, confined to Central and South America, may be distinguished as follows:—

A. Central eyes of both rows much further from each other than from the adjacent laterals. Femora with apical tubercles.
   1. Carapace produced behind, forming a narrow pedicle . . [Aphantochilus, O. P.-Cambr.]
   2. Carapace not produced behind . . . . . Majella, O. P.-Cambr.

B. Eyes of both rows approximately equidistant. Femora without apical tubercles . . . . . [Bucranium, O. P.-Cambr.]

No examples of the first or last of these genera have hitherto been taken in Central America, but their characters are so closely involved with those of *Majella* that they have been added to the Table.

### MAJELLA.

*Majella*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 191 (1896).

Type *M. affinis*, O. P.-Cambr. Mexico.

Maxillæ very elongate, attenuate towards the apex; labium very long and narrow, but distinct. Carapace not constricted and produced behind. Femora with tubercles on the upperside near the apex. Central eyes of both rows much further (twice as far) from each other than from the laterals.

There seems to have been some confusion as to the character of the eyes of *Bucranium*. In the description of the type-species, *B. taurifrons*, O. P.-Cambr. [P. Z. S. 1881, p. 773], it is stated that "the interval between those (the eyes) of the fore-central pair is distinctly greater than that between each and the fore-lateral next to it, while that between the hind-centrals is considerably less than that between each and the hind-lateral next to it," which cannot be correct.

In the comparison betwen this genus and *Majella* (Biol. Centr.-Amer., Arachn. Aran. i. p. 191), it is stated that "in *Bucranium* those (the eyes) of each of the two rows are equidistant," which is most probably the case, for examples which I identify as *B. taurifrons* from the Amazons, whence the type-species came, are before me, and the eyes of both rows are approximately equidistant. *Majella* is probably a valid genus, but whether this be so or not depends on the characters of forms which may be found in the future. In any case, if *Majella* is to stand *Bucranium spinigerum* must be referred to it, and not to *Bucranium*, for it presents precisely the same differences from *B. taurifrons* that *Majella affinis* does.

Two species have hitherto been described from Central America, and a single example only of each is known. If really distinct, they may be recognized thus:—

*a*. The anterior pair of tubercles on the abdomen missing from the central quadrangle. The posterior pair form, with two lateral tubercles, a procurving row of four tubercles . . . . . *affinis*, O. P.-Cambr.

*b*. Four large spinigerous tubercles forming a quadrangle on the central anterior dorsal area of the abdomen. The anterior pair form with another tubercle on each side a recurving row of four tubercles . . . . . *spinigera*, O. P.-Cambr.

### 1. **Majella affinis.** (Tab. XI. figg. 6, 6 *a*, ♀.)

*Majella affinis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 191, t. 24. figg. 3, 3 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Mexico, Atoyac in Vera Cruz (*H. H. Smith* [1]).

### 2. **Majella spinigera.** (Tab. XI. figg. 7, 7 *a–c*, ♀.)

*Bucranium spinigerum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 87, t. 11. figg. 11 *a–d* (♀)[1].

Type, ♀ immature, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Guatemala (*Sarg* [1]).

This species is very closely allied to, if not identical with, *M. affinis*. The four central tubercles on the anterior portion of the abdomen are, however, clearly marked; whereas in *M. affinis* the two anterior tubercles are absent. The vulva in the case of *M. spinigera* is not fully matured, while *M. affinis* is adult.

## Subfam. *STROPHIINÆ.*

Labium narrow. Sternum long, produced posteriorly between coxæ iv., normal. Carapace and abdomen not clothed with cusps or spinigerous tubercles. Anterior portion of the carapace not developed laterally. Legs almost entirely devoid of spines. Colulus almost obsolete.

This subfamily includes but two genera, the second (*Strigoplus*) being, so far as is known, confined to the Malayan Archipelago.

### STROPHIUS.

*Strophius,* Keyserling, Spinn. Amer., Later. p. 73 (1880).

Type *S. nigricans*, Keys. Peru.

Sternum extending to the fourth pair of coxæ, not shortened. Labium and maxillæ long, narrow, and acuminate at their apex. Cephalic area normal, not cornigerous. Mandibles with a conspicuous tuft of hair on the underside at their apex. Legs almost entirely devoid of spines. Anterior row of eyes straight, posterior row slightly recurved; central eyes of both rows smaller and much further from each other than from the laterals.

These characters are drawn from *S. hirsutus*, O. P.-Cambr., Keyserling's type of the genus being in the Museum at Warsaw.

Three species only are known, two of which are from Central America. These latter being of different sexes, there is no need to tabulate their characters.

#### 1. **Strophius hirsutus.** (Tab. XI. figg. 8, 8 *a*, *b*, ♀.)

*Strophius hirsutus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 87, t. 11. figg. 9 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 4·75 millim.

*Hab.* Panama, Bugaba (*Champion* [1]).

#### 2. **Strophius signatus.**

*Strophius signatus,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 103, t. 14. figg. 3, 3 *a–d* (♂) [1].

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* Mexico, Atoyac in Vera Cruz (*H. H. Smith*); Guatemala, Chamiquin (*Sarg* [1]).

This spider is possibly the male of *S. hirsutus*.

## Fam. SALTICIDÆ.

The name Salticidæ has been selected for this family in preference to Attidæ, because the generic name on which the former is based is the oldest. The general characters of the group are too well known to need more than a passing remark. The mode of progression being the first peculiarity to be noticed, it will be that by which the spiders are generally identified. They do not simply move forward, as do the

members of the Lycosidæ, but creep, run, and leap, often many times their own length, either to escape from a foe or to secure their prey.

Otherwise, the position of the eyes is characteristic. They are arranged usually in three rows (four in the group Lyssomaneæ) of 4—2—2. The centrals of the first row are the largest; the posterior centrals and the anterior laterals are about the same size; while the posterior centrals, referred to in the following descriptions as the small dorsal eyes, or simply the small eyes, are always the smallest of the group. In their other characters these spiders approach the members of the immense group including the Drassidæ, Clubionidæ, &c. The task of dividing up the enormous number of species, themselves very closely allied, into natural and convenient generic groups is not more easy in this family than in most of the others. Scarcely any character, or group of characters, which may be selected is really reliable, for although the species arrange themselves naturally into groups readily recognizable in a general way, yet when one endeavours to define their distinctive peculiarities, it becomes practically almost impossible to do so on account of intermediate forms.

But though the grouping of species into natural and convenient genera is difficult, yet the species are themselves, in most cases, perfectly distinct. The palpal organs of the male are usually well developed and furnish many useful characters, while the same may be said of the vulva of the female.

Though even these portions of the structure vary slightly in individuals, yet the general plan in the various species is quite distinct and different. Nor can there be much doubt that the characters furnished by the disposition of the various clusters of hairs and scales forming the patterns on the carapace and abdomen would, in well-preserved examples, furnish reliable distinctions both specific and generic.

The species represented in Central America may be placed, for convenience, in two subfamilies:—

A. Abdomen pediculate, more or less separated from the carapace on a distinct chitinized pedicle, admitting of free movement. Carapace, in some genera, very much constricted in the middle, in others not at all; the abdomen always more or less constricted. Legs in the first two groups very slender, subequal; in the third group, i. or i. and ii. more or less incrassate; usually also very much less spinose . . . . . TOXEINÆ.

B. Abdomen not separated by a chitinized pedicle. Neither carapace nor abdomen constricted in the middle. Legs, especially i. and ii., usually much stouter and more spinose . . . . . SALTICINÆ.

## Subfam. *TOXEINÆ.*

The members of this subfamily may in a general way be recognized by their resemblance, both in contour and in mode of action, to various kinds of Hymenoptera, a resemblance due chiefly to the constriction of the carapace or abdomen, and the

separation of the former from the latter by a pedicle which can be distinctly seen from above. The legs are usually very slender and only very weakly spined, those of the third and fourth pairs being always quite slender and often slashed longitudinally with black, exactly as are those of many of the ant-like species of the family Clubionidæ.

The subfamily is divisible into three distinct groups, distinguished by the relative size of the legs, the arrangement of the eyes, and the form of the carapace :—

A. Legs i., ii., iii., and iv. equal or subequal in slenderness, armed with few and weak spines.
   1. Carapace very deeply constricted behind the eyes, viewed in profile. Abdomen of male more or less enclosed within a dorsal and ventral chitinous plate, sometimes fused, sometimes open along the sides . . . . . SYNEMOSYNEÆ.
   2. Carapace not deeply constricted behind the eyes. Abdomen of male with a small chitinous dorsal plate only . . . . . TOXEÆ.

B. Legs i. and ii., or i. only, more or less incrassate, sometimes the femora only thickened; the spines, at all events beneath the tibiæ and protarsi i., longer and stouter . . . . . SYNAGELEÆ.

Of the various genera adopted, probably three fall into the first group, namely *Synemosyna*, *Simonella*, and perhaps *Iola*. The second group includes *Toxeus*, *Martella*, *Sarinda*, *Bocus*, *Zuniga*, *Emertonius*, and *Erica*; and the third group, probably, *Synageles*, *Keyserlingella*, *Hermosa*, *Leptorchestes*, *Fluda*, *Marengo*, *Bellota*, *Semosa*, *Descanso*, *Paradamœtas*.

Of these genera, seven only are known to me from Central America, *Synageles*, *Keyserlingella*, *Paradamœtas*, *Erica*, *Martella*, *Simonella*, and *Toxeus*, whose distinguishing characters will be found below under their respective subfamilies.

## Group **SYNEMOSYNEÆ.**

These spiders may be recognized by the very deep constriction in the middle of both the carapace and abdomen, the latter, however, being far more deeply constricted in the male. In this sex, too, the chitinized cuticle of the abdomen extends much further, both above and below, than in the female. The eyes are situated in four rows, somewhat approaching in this respect those of the genus *Lyssomanes*. The coxæ and trochanters of the fourth pair of legs are very long; the sternum is very long and narrow; while all four pairs of legs are, in both sexes, of the same degree of slenderness, their relative length being 4, 3, 1, 2, and the palpi of the female are only very slightly enlarged.

One genus alone is known to me.

## SIMONELLA.

*Janus*, C. L. Koch, Die Arachn. xiii. p. 21 (part.) (1846) (nomen præocc.*).
*Simonella*, Peckham, Proc. Nat. Hist. Soc. Wisc. 1885, p. 24 (Dec.).

Type *S. americana*, Peckham. Guatemala.

♀. Eyes in four rows. Cephalic quadrangle of eyes a little broader than long; those of the posterior row larger; those of the third row nearer to the posteriors. Coxæ and trochanters of legs iv. very strong; those of iii. rather longer and stouter than those of i. and ii. Sternum more than three times longer than broad, truncate in front, pointed behind. Labium and maxillæ short; mandibles small, situated well behind the anterior margin of the carapace. Pedicle distinct. Abdomen with an oval-oblong anterior dorsal scutum, also a ventral epigynal scutum. Carapace deeply indented behind the eyes; abdomen indented and constricted just behind the dorsal scutum. Legs 4, 3, 1, 2.

♂. Generally similar to the female, but the abdomen is divided in the middle by a greater or lesser constriction and almost the whole dorsal area is covered by a chitinous scutum, in addition to the epigynal ventral scutum, and a central one extending along three-fourths of the ventral area. The cephalic region in some males is more circular at the sides. Tibia of the first pair of legs with 2—2—2 spines beneath.

Note.—Peckham [Trans. Wisc. Ac. Sci. 1884, p. 278 (March)] selects *Janus melanocephalus*, C. Koch, as the type of *Janus*=*Janigena*, Karsch; *Synemosyna formica*, Hentz, as the type of *Synemosyna*, Hentz; while *S. americana*, Peckham, is the type of *Simonella*. These species are evidently very closely allied, but not having seen the two former one cannot say whether or not they ought to be generically separated, though they probably all belong to the group Synemosyneæ.

### *Males.*

*a*. Caput jet-black.
1. Size larger, length 8·5 millim. Tibia of palpus longer than broad, at least as long as the tarsus, with a broad sharp spur on the outer side . . . . . *americana*, Peckh.
2. Size smaller, length 6 millim. Tibia of palpus not longer than broad, shorter than the patella, the two together being as long as the tarsus. Tibial spur long, stout, bluntly pointed at its apex and slightly curved inwards; mandible with an angular prominence on the anterior lateral part at the base . . . . . *decipiens*, O. P.-Cambr.

*b*. Caput orange or golden-brown, with eyes situated on black spots; mandible with a stout cusp on the anterior lateral front at the base. Length 7·5 millim. . . . . *bicolor*, Peckh.

### *Females.*

*a*. Caput jet-black, thoracic area bright orange. Abdomen unicolorous beneath, with a single transverse brown girdle in the middle of the dorsal area, extending down the sides, followed by an oblong-oval central dorsal vulva, consisting of a straight transverse slightly sinuous rim remote from the genital rima, with a small dark pit just

* Stephens, Hymenoptera, 1835.

anterior to it in the middle; while behind it lies a semicircular cavity containing on each side a loop of the oviduct appearing from beneath the rim. Legs entirely orange; tibia i. slightly suffused with brown . . . . . *decipiens*.

*b*. Caput golden-brown, eyes on black spots. Thoracic area dull orange-brown, margined with brown. Abdomen with a basal and distal brown suffusion beneath, and seven distinct transverse trianguliform spots, the second and third, on each side of the middle point, being broader and extending slightly down the sides. Anterior legs white, tibia i. slightly suffused with brown. Legs iii. and iv. pale; coxa, trochanter, and femur iii. (except at the apex) brown; coxa, femur, and tibia iv. brown. Vulva consisting of a large triangular chitinous tongue, its apex directed backward, having a concavity on each side, towards the genital rima . . . . . *bicolor*.

### 1. **Simonella americana.** (Tab. XI. figg. 17, 17 *a–c*, ♂.)

*Simonella americana*, Peckh. Proc. Nat. Hist. Soc. Wisc. 1885, p. 24 (Dec.) [1]; Trans. Wisc. Acad. Sci. vii. p. 252, t. 12. fig. 4 (Nov. 1888) (♂) [2]; Occas. Papers Nat. Hist. Soc. Wisc. ii. 1, p. 80, t. 7. figg. 3, 3 *a–d* (1892) (♂) [3]; iii. 1, p. 5 (April 1896) [4].

Type, ♂, in coll. Peckham. Total length 8·5 millim.

*Hab.* GUATEMALA [1 2 3].

Examples of *Simonella* (♂ & ♀) (from Panama) sent by O. P.-Cambridge to Peckham were returned labelled *S. americana*. The females which accompanied the single male are undoubtedly *S. bicolor*, Peckh., according to the description and the figure of the vulva. The male itself, while obviously rightly mated with the females, is certainly not referable to *S. americana*, Peckh., whether we regard the figures of the palpus in both publications [2 3] or the description. The caput in the latter is said to be quite black: in the male accompanying *S. bicolor* it is orange-red, the eyes being on black spots. The tibia of the palpus of *S. americana* in both figures is twice longer than broad (rather less, one-half, in Emerton's figure [3]), whereas in the male of *S. bicolor* it is only very slightly longer than broad. The male palpus in *S. americana* is described as black, in *S. bicolor* it is white. The clypeus of *S. americana* is described, in 1888, as "less than one-half as high as anterior eyes"; in 1892, as "almost as high as the anterior eyes"; while Emerton's drawing depicts it as equal to one-quarter of an anterior eye. The anterior eyes being very large in this group, if the 1892 statement be correct, the spider is very different indeed from the male of *S. bicolor*.

There is probably a very different species in the Guatemalan region, while it is also quite likely that *S. bicolor*, of which the type came from Venezuela, should extend into Panama, whence came the male and females in question. Emerton's dorsal view of the male shows that the example he drew from is closely allied to *S. decipiens*; whether it is the same as that from which Peckham took his drawing of the palpus,

one cannot say, but it is possible these are two different species. In the description of the mandibles no mention is made of the anterior basal cusp, most noticeable in the example here noted as *S. bicolor*, ♂.

2. **Simonella decipiens.** (Tab. XII. figg. 3, 3 *a–c*, ♂; 4, 4 *a*, ♀.)

*Simonella decipiens*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 163, t. 19. figg. 15, 15 *a–c* (♂), 16, 16 *a*, *b* (♀) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 5·75 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

The Aculeate-Hymenopteron (*Pseudomyrma* sp.), orange, with black head, which was taken from the bushes where this spider was captured, was sent also in the same tube. The resemblance is complete, though of what precise significance it is difficult to suggest, except on the supposition that it wards off the attack of birds and wasps.

3. **Simonella bicolor.** (Tab. XII. figg. 1, 1 *a–d*, ♂; 2, 2 *a–d*, ♀.)

*Simonella bicolor*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. ii. 1, p. 83, t. 7. figg. 5, 5 *a* (1892) (♀) [1].

Type, ♀, in coll. Eugène Simon: total length 6·8 millim. Deuterotype, ♂, in coll. Godman & Salvin: total length 7·5 millim.

*Hab.* Panama, Bugaba (*Champion*).—Venezuela [1].

The male is new to science, that is, if it is distinct from that of *S. americana*, Peckh., which I cannot doubt on the evidence before me. It is possible that Mr. Peckham has placed the males of both species together, for the palpi are evidently very similar, though the black caput, if constant, as I suspect it is, which would assimilate *S. bicolor* with a different species of Formicidæ, should enable them to be separated.

## Group **TOXEÆ.**

The members belonging to this group are very numerous and distinct, of which a typical form (though not the type of the genus *Toxeus*) would be *Toxeus formicarius*, a well-known European species. The eyes are in three rows of 4—2—2; the carapace being, not constricted as in the Simonelleæ, but more or less raised in the cephalic region. The abdomen is in *Toxeus* distinctly constricted in the middle, but much less so than in *Simonella*. The coxa of the first pair of legs is longer, or not shorter, than that of the fourth pair, while trochanter iv. is quite short. Legs i. and ii. are not incrassate, all of them being of about the same degree of slenderness, their relative length being 4, 1, 3, 2.

The genera known to me may be separated by the following characters, based on the female sex only :—

*a*. Palpi incrassate and compressed. Tibia i. with 2—2—2—2—2 spines beneath. Cephalic region well marked, but not precipitous behind. Trochanter iv. only half the length of coxa iv. Sternum at least three times as long as broad. Cephalic quadrangle wider behind; small eyes midway between laterals. Abdomen constricted . . . . TOXEUS, C. Koch.

*b*. Palpi incrassate, very hairy, not compressed. Tibia i. with 2—2—2 spines beneath. Cephalic region abruptly precipitous behind. Trochanter iv. quite two-thirds as long as coxa iv. Sternum scarcely more than twice as long as broad. Cephalic quadrangle not wider behind; small eyes nearer to the posterior laterals. Abdomen only very slightly constricted . . . . . MARTELLA, Peckh.

I am unable to include *Erica* in the table for want of sufficiently well-preserved examples.

## TOXEUS.

*Toxeus*, C. L. Koch, Die Arachn. xiii. p. 18 (1846).

Type *T. maxillosus*, C. Koch. Java.

The spiders belonging to this genus are truly cosmopolitan, being found in Europe, Asia, Java, the Philippines, Burmah, Ceylon, Madagascar, Zanzibar, the United States, and Central America. The following are the characters of the genus:—

Eyes in three rows; cephalic quadrangle of eyes broader than long, wider behind; posterior laterals slightly larger than anterior laterals. Carapace twice longer than broad; cephalic region flat, in profile; thoracic region convex. Mandibles of the male very variable, usually as long as the carapace, but often either shorter or longer; horizontal, flattened above, depressed towards the apex, with a long sinuous fang. Mandibles of the female short and vertical. Coxa i. scarcely longer than coxa iv., coxa ii. being shortest and more or less globose; trochanter iv. longest, slightly more than one-half longer than coxa iv. Sternum more than three times longer than broad. Legs 4, 1, 3, 2. Tibia i. with 2—2—2—2—2 spines beneath; protarsus i. with 2—2 spines beneath; spines beneath protarsi ii. variable; legs iii. and iv. without spines. Abdomen pediculate, often slightly constricted before the middle; in the male sex with a median anterior and posterior coriaceous dorsal integument. Spinners short, anteriors and posteriors equal in length. Palpi of female broad and compressed.

NOTE.—Numerous species were originally included by Latreille under his genus *Salticus* (1805); amongst these were *S. formicarius* and *S. scenicus*. In 1806 Walckenaer placed them all under the name *Attus*. There was no definite selection of a type for either, nor any eliminating process leaving a type naturally selected, until 1810, when Latreille himself definitely selected *Araneus scenicus* as the type of *Salticus*.

The species known to me may be distinguished as follows:—

### *Males.*

*a*. Palpi short, only two-thirds as long as the carapace. Mandibles usually very long (very variable), compressed, with two (often one only) stout teeth at the apex beneath; 3 or 4 single separate teeth along the upper margin of the fang-groove, 7 or 8 small teeth along the lower margin at

its base. Fang very long, sinuous, without any spur or cusp throughout its length. Tibia of palpus only one-third longer than broad, shorter than the tarsus; tibial spur longer and sinuous; bulb with a long spiraloid spine, with two or three convolutions. Protarsus i. black. Abdomen more oval, not constricted; carapace unicolorous brown or black . . . . . *centralis*, Peckh.

*b*. Palpi very long, longer than the carapace. Mandibles shorter and stouter, not compressed; without teeth at the apex or on the anterior half or two-thirds; with three teeth on each side of the fang-groove at the base, the anterior tooth on the upper margin the largest. Fang long, sinuous, but with a stout conical spur beneath at the base of the apical third section. Tibia of palpus four or five times longer than broad, twice as long as the tarsus; tibial spur very short, sharp, and slightly curved; bulb globular, with a spine curving round its anterior circumference, but without spiraloid convolutions. Tarsus i. black. Abdomen very elongated, and constricted in front of the middle; carapace orange, with black cephalic area . . . *championi*, sp. n.

### *Females.*

*a*. Colour as in the male, but much less pronounced. Vulva consisting of a pair of white circular discs, situated within a diameter of each other and within a diameter of the genital rima, which is strongly emarginate in the middle. Between the two white discs are a pair of brown oval-elongate sacs, closely adjacent, dilate anteriorly, narrowed posteriorly, and encircling the inner semi-circumference of the white discs . . . . . *centralis*.

*b*. Colour as in the male, but much less pronounced. Vulva consisting of four brown circular discs; the anterior pair smaller, one-fourth of a diameter apart, two-thirds of a diameter from the posterior discs; the latter larger, one-half a diameter from the genital rima, which is not emarginate in the middle. Between the larger and smaller disc on each side lies a long oblique dark line, and behind the anterior discs a pair of dark curving lines—all of them indicating loops of the oviducts, which, with the discs, lie beneath the integument . . . . . *championi*.

## 1. **Toxeus centralis.** (Tab. XI. figg. 9, 9 *a*, *b*, 10, ♂; 11, ♀.)

*Salticus centralis*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. ii. 1, p. 19, t. 1. figg. 6 (♀), 6 *a*, *b* (♂) (1892) [1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 3·5, ♀ 4·5 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*); Panama, Bugaba (*Champion*); Central America [1].

The males of this species are exceedingly variable, both in size and in the dimension and structure of the mandibles, no two examples being exactly alike. The tibial spur of the palpus also varies in shape.

### 2. **Toxeus championi,** sp. n. (Tab. XI. figg. 12, 12 *a–f*, ♂ ; 13, ♀ .)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 6, ♀ 6·5 millim.

*Colour*, ♂. Carapace orange, cephalic area dark brown or black, with a band of white hairs behind. Abdomen black; anterior portion white, followed by black, constriction white above; posterior portion black, with several transverse bars of white hairs; spinners yellow, posterior pair often dusky. Mandibles orange-brown; femur of palpus orange; patella, tibia, and tarsus orange-brown. Legs variegated, yellow or orange and black. Femora iii. and iv. black; i. and ii. yellow, with a dusky stripe on each side. Tibia and protarsus iv. dark brown or black; tarsus i. black. Coxæ and trochanters i. and ii. yellow; iii. and iv. yellow, with brown side-mottlings. Sternum black. Labium and maxillæ black, apex of the former and inner margins of the latter orange.

♀. Much paler than the male, dull white and dusky brown.

*Structure*, ♂. Abdomen much constricted in front of the middle (of the female only slightly so). Mandibles very stout, about two-thirds the length of the carapace, almost horizontal, having at the base on the upper margin of the fang-groove a long stout tooth, followed by three much shorter teeth, and on the lower margin three short teeth closely situated together. The large tooth and the next to it on the upper margin are widely separate. Mandibles long and sinuous, with a stout spur at the base of their anterior third section beneath (those of the female are short and vertical). Palpus very long, longer than the carapace. Femur stout and curved; tibia stout, curved, and as long as the femur and patella together. Tarsus about equalling half the tibia; bulb globular, with a stout spine curving round its anterior circumference. No long spiraloid spine as in *T. centralis*. Tibial spur short, stout, pointed, its apex directed downwards.

The vulva of the female consists of four brown circular discs, the anterior pair smaller and much closer together. A long dark oblique line runs between the discs on each side, marking where the oviduct comes near the surface; behind the anterior pair of discs are two other curving dark lines, indicating another loop in the oviduct.

*Hab.* Panama, Bugaba (*Champion*).

## MARTELLA.

*Martella*, Peckham, Occas. Papers Nat. Hist. Soc. Wisc. ii. 1, p. 45 (1892).

Type *Martella pottsi*, Peckham. Central America.

Eyes in three rows. Cephalic quadrangle broader than long, not wider behind. Carapace twice longer than broad, scarcely narrower behind. Cephalic area occupying about half the carapace, flat above in profile, convex behind in the thoracic region. Mandibles vertical. Abdomen pediculate; not constricted in the middle. Spinners of equal length, anterior pair the stoutest. Palpi of female enlarged in the two terminal segments and clothed with long, bristly, fringing hairs. Legs i. and ii. not incrassate; tibia i. with 2—2—2 spines beneath; protarsus i. with 2—2 spines beneath; trochanter iv. quite two-thirds as long as coxa iv.; coxa i. not longer than coxa iv. Sternum scarcely more than twice longer than broad. Small dorsal eyes nearer to the posterior than to the anterior laterals.

### 1. **Martella pottsi.** (Tab. XI. figg. 14, ♂ ; 15, ♀ .)

*Martella pottsii*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. ii. 1, p. 45, t. 4. figg. 2, 2 *a–d* (♀), 2 *e*, 2 *f* (♂) (1892) [1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 4·4, ♀ 4·8 millim.

*Hab.* Guatemala [1].

I do not know this species in nature and can therefore only compare the figures of the vulva with the corresponding portion of *M. lineatipes*.

### 2. **Martella lineatipes,** sp. n. (Tab. XI. figg. 16, 16 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

*Colour.* Carapace black, with a thin transverse band of white hairs behind the cephalic area. Palpi mahogany-brown; tibia and tarsus enlarged and clothed with stiff black hairs. Legs pale yellow; tarsus i. black; femora, patellæ, and tibiæ i. and ii. with a black line, more or less broken, on each side, but broad and unbroken on the inner side; femur, patella, tibia, and base of protarsus black. Sternum black. Abdomen clothed with black and brown hairs, with an indistinct band of white hairs across the middle.

The vulva consists of a large oval depression, encircled by a broken black chitinous rim, having a pair of dark spots in the centre; its posterior margin deeply emarginate.

*Hab.* Mexico, Teapa (*H. H. Smith*).

These examples have been labelled as belonging to the genus *Martella* by Mr. Peckham.

## ERICA.

*Erica,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. ii. 1, p. 55 (1892).

Type *E. eugenia*, Peckham. Brazil.

Carapace constricted in the anterior thoracic region. Ocular quadrangle broader than long, slightly wider in front. Anterior row of eyes straight by their posterior margins; centrals twice the diameter of the laterals. Small eyes midway between the laterals. Legs 4, 3, 1, 2, equally slender. (The spines on the legs are very weak, but the only example seen is too much rubbed to furnish reliable evidence.)

### 1. **Erica eugenia.** (Tab. XII. figg. 10, 10 *a–c*, ♂.)

*Erica eugenia,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. ii. 1, p. 55, t. 4. figg. 9, 9 *a–c* (♀), 9 *d*, 9 *e* (♂) (1892) [1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 4, ♀ 2 millim.

*Hab.* Panama, Bugaba (*Champion*).—Brazil, Chapada (*H. H. Smith*) [1], Amable Maria (*Taczanowski* [1]).

The Panama specimen of this species has been identified by Mr. Peckham. The tibia of the palpus, however, exhibits a small dark cusp on the anterior margin, which does not appear in the figure in his paper.

## Group **SYNAGELEÆ.**

This group may eventually be split up into several others, depending on the greater or less extent of the incrassation of legs i. and ii., amongst other less readily noticeable characters. The eyes are in three rows of 4—2—2; the carapace is not constricted in the middle, the abdomen more or less so, or not at all. Coxa iv. is longer than coxa i., and trochanter iv. is almost as long as coxa iv. Legs 4, 3, 1, 2 in relative length; i. and ii., or i. only, incrassate. The palpi of the female are slender.

The genera may be separated as follows:—

GENERA.

1. Legs i. and ii. incrassate, especially the femora. Abdomen not constricted.
   *a*. Cephalic quadrangle broader than long, occupying less than half the total length of the carapace. Small eyes equidistant from laterals. Sternum slightly longer than broad. Trochanter iv. only half as long as coxa iv. Anterior eyes forming a straight line by their posterior margins. Pedicle less distinct. . . . PARADAMŒTAS, Peckh.

2. Legs i. only incrassate, especially the femora. Abdomen constricted.
   *a*. Cephalic quadrangle longer than broad, occupying over half the total length of the carapace. Small eyes much nearer to the anterior laterals than to the posterior laterals; twice further from the latter than from the former. Sternum two and a half times longer than broad. Trochanter iv. as long as coxa iv., though not so wide. Anterior row of eyes slightly recurved. Pedicle more distinct. Abdomen constricted before the middle. SYNAGELES, Simon.
   *b*. Cephalic quadrangle broader than long, occupying one-half of the carapace. Small eyes midway between the laterals, or slightly nearer the anteriors . . . . . KEYSERLINGELLA, Peckh.

## SYNAGELES.

*Synageles*, E. Simon, Aran. Fr. iii. p. 14 (1876).

Type *Synageles venator* (Lucas). Europe.

Eyes in three rows; central anteriors three times the diameter of the lateral anteriors; posteriors slightly larger than lateral anteriors; those of the second row very minute, situated closer to the anteriors than to the posteriors. Cephalic quadrangle distinctly longer than broad (very much more so in appearance than is the case by measurement), parallel-sided, not wider behind; posterior row as wide as the carapace at the point of their situation. Cephalic region occupying more than half the length of the carapace, delimited behind by a low ridge, abruptly convex posteriorly and slightly recurved at the posterior margin, where it covers the pedicle. Sternum three times longer than broad. Coxæ i., ii., iii. subequal, the trochanters shorter; coxa iv. very long, of the same length as the trochanter. Legs 4, 3, 2, 1; legs i. incrassate, especially the femora, tibiæ with 2—2—2 long stout spines beneath, protarsi with 2—2 longer spines beneath; the other legs almost entirely without spines. Mandibles short, vertical. Abdomen pediculate, very slightly constricted before the middle. Small eyes much nearer to the anterior than to the posterior laterals.

### 1. **Synageles variegata**, sp. n. (Tab. XII. figg. 7, 7 *a*, ♂; 8, 8 *a–d*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3, ♀ 3·5 millim.

*Colour*, ♀. Carapace blue-black, glossy, with a band of white hairs behind the cephalic area. Palpi yellow; coxæ and trochanters i. and ii. yellow; rest of leg i. pale orange; leg ii. yellow, anterior side of femur, tibia, protarsus, and tarsus brown; coxa, trochanter, femur, apex of patella, tibia, and base of protarsus iii. black; coxa iv. black, trochanter (partly yellow), femur, apex of patella, tibia, and protarsus black. Abdomen entirely brown, with white hairs at the constriction, above. (For figure of vulva, see Tab. XII. fig. 8 *d*.)

The male is similar to the female in colour. Tibia of palpus short; spur short, broad, black, its apex attenuate and slightly incurved (see Tab. XII. fig. 7 *a*).

*Hab.* PANAMA, Bugaba (*Champion*).

## KEYSERLINGELLA.

*Keyserlingella*, Peckham, Occas. Papers Nat. Hist. Soc. Wisc. ii. 1, p. 69 (1892).

Type *K. perdita*, Peckham. Colombia.

The full diagnosis of this genus cannot be given without examples for examination. The following characters are those mentioned by Peckham:—Spiders small. Cephalothorax almost flat above, without constriction or depression. Quadrangle of eyes wider than long, equally wide in front and behind, or wider behind, occupying at least one-half of the cephalothorax. Mandibles vertical or slightly inclined. Legs (♂) 4, 1, 3, 2; (♀) 4, 3, 1, 2.

### 1. **Keyserlingella cara.** (Tab. XII. figg. 9, 9 *a*, ♂.)

*Keyserlingella cara*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. ii. 1, p. 71, t. 5. figg. 8, 8 *a* (♂) (1892) [1].

Total length, ♂, 3·3 millim.

*Hab.* Guatemala [1].

## PARADAMŒTAS.

*Paradamœtas*, Peckham, Proc. Wisc. Acad. Sci. 1885, p. 78 (Dec.).

Type *P. formicina*, Peckham. Guatemala.

Characters based on the female. Legs i. and ii. incrassate, especially the femora. Legs 4, 3, 1, 2, or 4, 1, 3, 2. Tibia i. with 2—2—2 spines; protarsus i. with 2—2 spines beneath. Palpi slender. Sternum about one-fourth longer than broad. Coxa iv. longer than that of i., ii., and iii.; trochanter iv. not more than half the length of coxa iv. Anterior eyes in an almost straight line, straight by the posterior margins: diameter of laterals scarcely more than half that of centrals. Mandibles vertical, weak. Cephalic quadrangle broader than long, slightly wider behind, occupying less than half the total length of the carapace. Abdominal pedicle very short. Small eyes equidistant between the anterior and posterior laterals.

### 1. **Paradamœtas formicina.** (Tab. XII. figg. 5, ♂; 6, 6 *a–c*, ♀.)

*Paradamœtas formicina*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. ii. 1, p. 74, t. 6. figg. 2, 2 *a–c* (♀), 2 *d* (♂) (1892) [1].

*Hab.* Guatemala [1]; Panama, Bugaba (*Champion*).

The female from Bugaba differs so little in the form of the vulva from the figure given by Peckham that one cannot but regard it as belonging to the same species.

## Subfam. *SALTICINÆ.*

The members of this subfamily differ from those of the Toxeinæ in not possessing a definite elongated pedicle between the carapace and the abdomen. The legs are much stouter as a rule and much more spinose. The genera belonging to this division which are represented in Central America may be separated into various more or less definite and natural groups. The Lyssomaneæ and the Homalatteæ are perhaps as distinct as

any of them; the former being distinguished immediately from all the others by the position of the anterior lateral eyes, which are quite behind the central anteriors.

GROUPS.

A. Eyes in four rows, the anterior laterals situated behind the anterior centrals, these latter being very large . . . . . LYSSOMANEÆ.

B. Eyes in three rows, the anterior laterals situated at the side of the anterior centrals; these latter, though large, less so in proportion.

*aa*. Tibiæ i. and ii. with 2—2—2—2 or 2—2—2 spines beneath, the basal pair situated close to the base of the segment.

i. Protarsi iii. and iv. very spinose, with three distinct rings of spines—a basal, a median, and an apical group. Sternum either circular or elongate-oval, sometimes narrower behind, or slightly narrower in front, but not so narrow as in the next group. Carapace high, convex, not compressed . . . . . AMYCEÆ.

ii. Protarsi iii. and iv. much less spinose, with a few weak spines only at the apex and one on each side in the middle and at the base, but these often absent. Sternum usually three or four times longer than broad, much narrower in front, the coxæ of legs i. often almost meeting. Carapace not high, but compressed, as also is the abdomen . . . . . MARPTUSEÆ.

*bb*. Tibiæ i. and ii. with 2—2—2 pairs of spines beneath, the basal pair (each being often placed at different distances from the base) situated at about one-third from the base, or in the middle of the segment beneath, or in the apical third portion.

1. Eyes of posterior row more or less remote from the margins of the carapace; the ocular quadrangle occupying less than half the total length of the carapace . . . . . PHIDIPPEÆ.

2. Eyes of posterior row situated on the margins of the carapace; the ocular quadrangle occupying more than half the total length of the carapace . . . . . HOMALATTEÆ.

NOTE.—The few characters given above are those which would first strike one as distinguishing the various groups of species on a cursory examination. They are not put forward as either exhaustive, exclusive, or final.

## Group **LYSSOMANEÆ.**

The members of this group have the following general characters—that is, as exhibited by the genus *Lyssomanes*, with which alone I am acquainted:—

Abdomen long and narrow; spinners very inconspicuous, posterior pair slightly longer and more slender than those of the anterior pair, the centrals almost obsolete. Cephalic area raised, the eyes appearing on distinct tubercles. Central anterior eyes very large. Sternum almost circular. Legs long and slender, especially in the male, the apex of the tibia and protarsus of the first pair sometimes being fringed with erect black hairs, all very spinose; femora with 1—1 long spines on the dorsal ridge, and 3 or 4 apical spines, not closely adjacent; patellæ i., ii., iii., and iv. each with a single apical spine. Tibiæ i. and ii. with 2—2—2—2 long spines beneath, besides lateral spines; protarsi i. and ii. with 2—2—2 long spines

beneath and lateral spines as well; tibiæ and protarsi iii. and iv. also armed with long and numerous spines. Mandibles of the female stout, convex, porrect, and armed in front with two pairs of short bristles on the inner surface towards the base; those of the male usually highly developed and elongate, with the pairs of bristles as in the female, and the fang very long and sinuous.

The colour in nature is, by all accounts, bright grass-green, the cephalic area being often relieved by crimson tufts of hair.

Members of this group are found in North, Central, and South America, in the Antilles, Madagascar, Ceylon, and Samoa. They have been split up into various genera, of which we retain two only as likely to be permanent. These may be distinguished as follows, according to Peckham, for I do not know *Asemonea*:—

GENERA.

A. Cephalic ocular quadrangle never more than one-third broader than long . . . . . LYSSOMANES, Hentz.

B. Cephalic ocular quadrangle at least twice broader than long . . ASEMONEA, O. P.-Cambr.

## LYSSOMANES.

*Lyssomanes*, Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 198, t. 17. fig. 3 (1844); Burgess, Spid. U.S. p. 49, t. 7. fig. 3 (1875).

*Jelskia*, Taczanowski, Horæ Soc. Ent. Ross. viii. p. 128, t. 4. fig. 11 (1871).

*Maroussa*, Peckham, Trans. Wisc. Acad. Sci. vii. p. 225 (Nov. 1888).

Type: of *Lyssomanes*, *L. viridis* (on tab. 7 in Burgess's work *L. viridans*), Hentz, North and South Carolina; of *Jelskia*, *J. longipes*, Tacz., Guiana; of *Maroussa*, *M. antillanus*, Peckham, San Domingo.

Eyes in four transverse rows of two each; first pair very large, three times the diameter of those of the second row; second pair separated nearly one diameter posteriorly from the anteriors; third pair very small, nearer to those of the second than of the third; fourth pair slightly larger than those of the second row; eyes of the second row sometimes wider, usually as wide as or slightly narrower than those of the first row. Cephalic quadrangle of eyes sometimes slightly longer than broad, or broader than long, narrower behind. Ocular region high, obliquely vertical laterally. Sternum almost circular. Labium and maxillæ long, the latter dilated at the apex. Legs variable in relative length, 1, 2, 3, 4; 1, 4, 3, 2; or 4, 1, 2, 3; iii. and iv. spinose. Protarsi i. and ii. with three pairs, tibiæ i. and ii. with two pairs of long spines beneath; femora i. and ii. more or less spinose, and with three or four spines gathered round the apex; tarsal claws 2, claw-tuft present; coxæ i. and ii. rather longer and stouter than iii. and iv. Spinners short, tuberculiform; posteriors longer and more slender than the anteriors; centrals almost obsolete. Mandibles of the male often very long, with elongate sinuous fang, similar in aspect to those of the genus *Tetragnatha*, of the family Argiopidæ; those of the female simple, with two pairs of stiff bristles meeting each other across the inner margin in front about the middle.

The characters given in the following Table will serve to distinguish the species which are known to me:—

*Males.*

A. Upper inner margin of fang armed near its base with a more or less developed tooth or spur.

*a*. Fang-tooth more remote from the base, not highly developed.

(Tibiæ and protarsi of legs i. and ii. not clothed with distinct fringes of black hair. Tibia of palpus with a distinct isolated

pencil of stiff bristles on the more or less gibbous upper margin. Abdomen with two broken or unbroken dark bands. Leg-segments sooty at their apex.)

1. Tibia of palpus four times longer than broad; pencil of bristles situated just in front of the middle point of the gibbous upper margin. Inner spine at apex of palpal organs longer and more decidedly sinuous. Abdomen with two dark broken bands on the dorsal area. Carapace with broad central dark band behind the eyes . . . . . *deinognathus*, sp. n.

2. Tibia of palpus five times longer than broad; pencil of bristles situated at the base of the anterior third of the segment on the slightly gibbous upper margin. Inner spine at apex of palpal organs shorter and less sinuous. Abdomen with two unbroken bands on the dorsal area. Carapace without any dark band behind the eyes . . . . . *pachygnathus*, sp. n.

*b*. Fang-tooth close to the base, forming a well-developed spur.

(Carapace with a narrow dark band behind the eyes; abdomen with two broken or unbroken dark bands on the dorsal area.)

1. Tibia of palpus four times longer than broad, with a thick pencil of bristles just behind the middle of the upper somewhat gibbous margin. Protarsus i. having the apex fringed on both sides with black hairs. Abdominal bands broken. Inner spine at the apex of the palpal bulb long, more slender, and its point directed more decidedly outward . . . . . *protarsalis*, sp. n.

2. Tibia of palpus five times longer than broad, without any pencil of bristles on the upper margin. No fringes of black hairs, but only a scanty fringe of pale hairs at the apex of protarsus i. Leg-segments with apical black annulations. Abdominal bands entire. Inner spine at the apex of the palpal bulb short, stouter, its apex directed more inward . . . . . { *reductus*, Peckh. / *simplicipes*, sp. n.

B. Upper margin of fang plain, not armed with any tooth or spur.

I. Leg i. heavily fringed on each side of the protarsus alone, or on both tibia and protarsus.

*aa*. Apical third of tibia and protarsus i. heavily fringed on each side with black hairs; tibia ii. only slightly so.

1. Tibia of palpus three times longer than broad, with a small pencil of bristles in the centre. Inner spine of palpal organs very long, curving upwards and sinuously across, its point resting within the cavity of the basal portion of the outer apical spine; the basal stalk of this long spine developed into a sharp spur anteriorly. Apex of mandible with a very short blunt spur above. *spiralis*, sp. n.

2. Tibia of palpus four times longer than broad, with a thick pencil of bristles situated a little anteriorly to the centre of the slightly

gibbous margin. Inner spine of palpal organs similar, but shorter, its point falling well away from and above the outer spine; the basal stalk of this spine with only a slight blunt lobe anteriorly (not a sharp point). Apex of mandible with a much longer and more slender spur above . . . . . { *spinifer*, sp. n. [*jemineus*, Peckh.]

*bb*. Protarsus i. alone heavily fringed on each side with black hairs.

1. Tibia of palpus with a thick pencil of bristles on the anterior third of the upper margin, situated on an almost tuberculiform gibbosity.

(Tibia of palpus nearly four times longer than broad. Inner spine of the palpal organs long, stout, straight, slightly curved at the apex, outer spine deeply bifid at the apex, its basal portion with two large, sharp, curving spurs.) . { *trifurcatus*, sp. n. *patens*, Peckh.

2. Tibia of palpus plain, without any pencil of bristles along the upper margin. Apex of mandible with a very inconspicuous tooth above, a larger one below. Mandibles and fang much less strongly developed than in any of the above species.

*a*. Inner spine of palpal bulb almost straight . . . . . *remotus*, Peckh.

*b*. Inner spine of palpal bulb strongly curved outwards over the bulb. (See Peckham's figure.) . . . . . *placidus*, Peckh.

II. Tibia and protarsus i. without any decided fringe on each side; apex of leg-segments dark. (Tibia of palpus four times longer than broad, without a distinct pencil of bristles, but with a few more or less scattered ones only on the upper margin, which is not gibbous. Inner spine of bulb stout and curved outwards towards the apex. Mandibles immensely stout; fang deeply sinuous, forming a large semicircular lobe at its base; apical tooth on the lower side deeply bifid, the tooth on the upperside strongly developed.) . . . . . *mandibulatus*, sp. n.

## *Females.*

A. Vulva presenting a pair of large circular, circular-oval, or elliptical discs, lying just beneath the surface of the epidermis.

i. Size larger, length 9 millim. Vulva with two large circular-oval discs two diameters apart.

(Between and behind them on the posterior margin is a triangular white prominence, flanked on each side by a dark brown sinuous spur. Between the discs appear a pair of dark spots and in front of them another pair of sinuous spots, both marking where portions of the oviduct approach the surface.) . . . . . *spinifer*.

ii. Size smaller, length 6–7 millim. Vulva with two circular or ellipsoidal discs adjacent or less than one diameter apart.

*a*. Discs circular, half a diameter apart, close to the posterior margin, with a dark transverse curved bar embracing them in front . . *elegans*, sp. n.

*b.* Discs ellipsoidal or elongate-oval, obliquely convergent anteriorly, their outline at this point obsolescent; with, anteriorly, a dark sinuous chitinous rim outlining a shallow concave area, terminating on each side in a dark spot . . . . . *gracilis*, sp. n.

B. Vulva not presenting any pair of discs, either oval or circular. Length 7 millim.

1. Vulva very simple, consisting of a long, broad, convex area, marked with four red-brown curvilinear spots, traces of the oviduct and perhaps orifices, forming a rectangle longer than broad . . . . { *trifurcatus.* / *blandus*, Peckh.

2. Vulva more complex, consisting of a pair of chitinous curving pieces, converging upon the posterior margin or rima, but not meeting, leaving a rectanguliform vacant space. A pair of dark spots appear just in front of these pieces, and from them extend to the anterior margin a pair of irregular, longitudinal, oval discs, enclosing a narrow, triangular, pale space between their anterior margins. The form of this vulva is also variable . . . . . *deinognathus.*

Note.—The entire absence of any distinctive coloration and the close similarity in general structure of the females of the five species known to me render the formation of a Table based on such characters impossible. All the species are probably, in nature, bright emerald- or grass-green, with or without crimson spots on the cephalic area. This last character, at first sight likely to be of use, fails—for examples occur of the same species with crimson spots and others with entirely white hairs. They can, however, be easily identified, as can most Salticids of the female sex, by the appearance or non-appearance beneath the epidermis of the entrance to the ovaries, and the various convolutions of the oviduct.

1. **Lyssomanes deinognathus,** sp. n. (Tab. XIII. figg. 5, 5 *a–c*, ♂; 6, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 7, ♀ 7 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*).

The male of this species may be recognized by the tooth on the fang-margin and the absence of decided fringes of hair on the protarsus of leg i. The legs have the apex of the segments dusky; and the abdomen, unicolorous below, has a longitudinal, broken, olive-brown band on the dorsal area; the carapace has a broad central dark band. The coloration, however, is so variable that little reliance can be placed on it, the whole spider being probably green in life. Even the mandibles vary as to the number of teeth in the same specimen. The female has four black spots on the abdomen.

2. **Lyssomanes pachygnathus,** sp. n. (Tab. XIII. figg. 7, 7 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* Guatemala (*Sarg*).

This species, of which a single male only has been received, may be distinguished from *L. deinognathus* by the greater proportionate length of the tibia of the palpus, and (if this be constant, which I very much doubt) by the pair of unbroken dark bands on the dorsal area of the abdomen. The spur at the apex of the mandible beneath

has a stout tooth at its base, part of itself, and another isolated one near it. This character is also to be found in *L. deinognathus*, and in other general respects the two species are very similar.

### 3. **Lyssomanes protarsalis,** sp. n. (Tab. XIII. figg. 3, 3 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5·5 millim.

*Hab.* Guatemala (*Sarg*).

Also represented in our collection by a single male. It may be recognized by the tooth on the fang being situated quite close to its base, and by the protarsus i. being fringed with black hairs in the apical third. The tibia of the palpus bears a thick pencil of bristles just behind the middle on the upperside. The apex of the leg-segments is not dark, and the carapace has a narrow dark band behind the eyes, while the abdomen has two broken bands on its dorsal area.

### 4. **Lyssomanes reductus.**

*Lyssomanes reductus,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 100 (♂) (April 1896) [1].

Type, ♂, in coll. Peckham. Total length 6·3 millim.

*Hab.* British Honduras [1].

It is highly probable that this spider is identical with *L. simplicipes*, but without figures of the palpal organs it is impossible to be at all sure.

### 5. **Lyssomanes simplicipes,** sp. n. (Tab. XIII. figg. 4, 4 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6·5 millim.

*Hab.* Guatemala (*Sarg*); Panama, Bugaba (*Champion*).

Four adult males only were taken by Mr. Sarg in Guatemala, and one by Mr. Champion in the State of Panama. This species resembles *L. protarsalis* in almost all respects, except that the tibiæ and protarsi, and to some extent the patellæ of the legs, are black at their apex; the protarsi of the first pair not being so thickly fringed with black hair. The tibia of the palpus has no pencil of bristles on the upperside, and the abdomen has a pair of unbroken black bands, the carapace also having a narrow dark band behind the eyes.

### 6. **Lyssomanes spiralis,** sp. n. (Tab. XII. figg. 11, 11 *a–j*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

*Hab.* Guatemala, Guatemala city (*Stoll*).

Two adult males only occur in the collection before me. This species may be recognized by the absence of any tooth on the fang and by the semicircular spine on the inner side of the palpal bulb; also by the fringe of black hairs on each side of the apical third or half of tibia and protarsus i. and of tibia ii. The apex of the mandible

above bears fewer spines than in most other species of the genus. Legs without apical annulations to the segments. Carapace with a broad dark band behind the eyes. Abdomen almost entirely unicolorous dark olive-brown, except a wedge-shaped area on the anterior lateral margin, where the ventral and dorsal suffusions fail to coalesce.

*L. spiralis* is very similar to *L. spinifer*, but quite distinct.

7. **Lyssomanes spinifer,** sp. n. (Tab. XII. figg. 12, 12 *a–e*, ♂; 13, 13 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 8, ♀ 9 millim.

*Hab.* Mexico, Atoyac in Vera Cruz (*H. H. Smith*); Guatemala (*Sarg*).

Eight adult males and two adult females have been received. This spider closely resembles *L. spiralis*, but the inner palpal spine is shorter and less circularly curved. For detailed differences, see the Table of the species.

It is impossible to say whether the Central-American examples are really different from *L. jemineus*, Peckh.; but in the figure given by Peckham of the male palpus (t. 11. fig. 9) the inner spine decidedly varies in the direction of its curvature. It is quite possible also that there should be several closely-allied species having the strong fringe on the tibia and protarsus of legs i. and ii. So that, although one cannot help suspecting that *L. spinifer* is identical with *L. jemineus*, one is not warranted in thus identifying it without better evidence than that furnished by the figure and description of the latter.

[8. **Lyssomanes jemineus.** (Tab. XIII. figg. 14, ♂; 15, ♀.)

*Lyssomanes jemineus*, Peckh. Trans. Wisc. Acad. Sci. vii. p. 234, t. 11. fig. 9 (♂), t. 12. fig. 14 (♀) (Nov. 1888) [1].

Type, ♂, in coll. E. Simon. Total length, ♂ 7·5, ♀ 8 millim.

*Hab.* South America [1].

*L. jemineus* is merely included here for comparison with *L. spinifer*; the figures are copied from Peckham's work.]

9. **Lyssomanes trifurcatus,** sp. n. (Tab. XIII. figg. 9, 9 *a–c*, ♂; 10, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 6·5, ♀ 7 millim.

*Hab.* Panama, Bugaba (*Champion*).

This species, very closely allied to *L. patens*, Peckh., has the protarsus of the first pair of legs heavily fringed with black hairs on the apical third of the segment. The carapace and abdomen are entirely unicolorous, while the apex of the tibiæ and patellæ of the legs are slightly dusky. These colours, however, are not to be relied on for any practical purposes. The fang of the mandible has no tooth. The figure of the palpus of *L. patens*, Peckh., would seem to suggest that these examples from Bugaba are identical with his species; but a single figure of these complicated organs is not sufficient, and the

absence of any clypeal space below the anterior eyes, if correctly drawn, disposes at once of the supposition that the two are identical. The outer palpal organs present a large trifurcate structure, whose upper anterior prong is itself deeply bifid.

### 10. **Lyssomanes patens.** (Tab. XIII. figg. 1, 1 *a*, ♂; 2, 2 *a*, ♀.)

*Lyssomanes patens*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 99, t. 7. figg. 8, 8 *a* (♂), 8 *b*, *c* (♀) (April 1896) [1].

Type, ♂, in coll. Peckham. Total length, ♂ 6, ♀ 7 millim.

*Hab.* British Honduras [1]; Panama [1].

In the figure of the eyes of the male of this species the clypeus is represented as though entirely obsolete. If this be so, *L. patens* is very distinct from *L. trifurcatus*, as one might have otherwise been inclined to doubt. Peckham, however, makes no mention of this character in the description. In drawing the eyes from in front, and somewhat also from above, the clypeus would naturally disappear beneath the anterior eyes; but in that case these eyes should be represented as ellipsoidal, not circular. In the adjacent figure of the female, drawn from the same position, the clypeus is very evident. One can only conclude that the clypeus in the male is obsolete.

### 11. **Lyssomanes placidus.** (Tab. XIII. fig. 13, ♂.)

*Lyssomanes placidus*, Peckh. Trans. Wisc. Acad. Sci. vii. p. 229, t. 11. fig. 5 (♂) (Nov. 1888) [1].

Type, ♂, in coll. Peckham. Total length 6·8 millim.

*Hab.* Mexico [1].

### 12. **Lyssomanes remotus.** (Tab. XIII. figg. 8, 8 *a–c*, ♀.)

*Lyssomanes remotus*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 100, t. 7. figg. 9, 9 *a* (♂) (April 1896) [1].

Type, ♂, in coll. Peckham. Total length 5·5 millim.

*Hab.* Guatemala (*Sarg*); Panama (*Keyserling* [1]).

I have little doubt that the male taken by Mr. Sarg in Guatemala is identical with *L. remotus*, Peckh., though the figure of the palpal organs is not quite sufficiently detailed to enable one to be quite confident. The palpal organs are simple, the inner spine being straight, stout, bluntly pointed, and not curved at the apex; the outer spine is broadly convex basally, terminating in a curved sharp point, directed inward. The mandibles have a dark band down the centre above; the carapace has a dark central thoracic band behind the eyes; the abdomen has two broad, unbroken, longitudinal dark bands; the ventral area is unicolorous. The protarsus i. is heavily fringed on the apical third with black hairs, otherwise the legs are unicolorous.

13. **Lyssomanes mandibulatus,** sp. n. (Tab. XIII. figg. 11, 11 *a–c*,.

Type, ♂, in coll. Godman & Salvin. Total length 6·5 millim.

*Hab.* MEXICO, Teapa (*H. H. Smith*); GUATEMALA (*Sarg*).

The apex of the leg-segments in this species is black, and there is only a very light fringe of dark hairs on each side of the apex of protarsus i. There is also a central thoracic and postero-lateral marginal dark band; while the abdomen, unicolorous below, bears two broken dark dorsal bands. For a description of the palpal organs, see the Table of the species. Two adult males only occur in our collection.

14. **Lyssomanes blandus.** (Tab. XIII. fig. 17, ♀.)

*Lyssomanes blandus,* Peckh. Trans. Wisc. Acad. Sci. vii. p. 241, t. 12. fig. 13 (♀) (Nov. 1888) [1].

Type, ♀, in coll. Peckham. Total length 7·4 millim.

*Hab.* GUATEMALA [1].

The form of the vulva of this species as drawn by Peckham is very similar to that of *L. trifurcatus*, but whether the two species are identical or not I cannot say.

15. **Lyssomanes elegans,** sp. n. (Tab. XII. fig. 14, ♀; Tab. XIII. figg. 12, 12 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* MEXICO, Teapa (*H. H. Smith*); PANAMA, Bugaba (*Champion*).

Three females only, which can be at once recognized by the form of the vulva (Tab. XII. fig. 14; Tab. XIII. fig. 12 *b*).

16. **Lyssomanes gracilis,** sp. n. (Tab. XIII. fig. 16, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* GUATEMALA (*Sarg*).

A single female only, also recognizable by the form of the vulva.

## ASEMONEA.

*Asemonea,* O. P.-Cambridge, Ann. & Mag. Nat. Hist. (4) iii. p. 65, t. 5. figg. 50–52 (1869).
*Asamonea,* E. Simon, Bull. Soc. Zool. Fr. x. p. 27 (1885).

Type of *A. tenuipes*, O. P.-Cambridge, Ceylon; of *A. puella*, E. Simon, Landana.

The difference between this genus and *Lyssomanes* lies in the greater breadth of the ocular quadrangle; but as to whether this character is the only one or of sufficient importance on which to base a separate generic group, one cannot at present offer any opinion.

1. **Asemonea flava.** (Tab. XIII. fig. 18, ♀.)

*Asamonea flava,* Peckh. Trans. Wisc. Acad. Sci. vii. p. 246, t. 12. fig. 18 (♀) (Nov. 1888) [1].

Type, ♀, in coll. Peckham. Total length 5·6 millim.

*Hab.* CENTRAL AMERICA [1].

No example of this species is to be found in our collection, the generic characters being taken from Peckham's work.

## Group AMYCEÆ.

### GENERA.

A. Spines beneath tibiæ i. and ii. in pairs of 2—2—2—2, those beneath protarsi i. and ii. in pairs of 2—2—2, with or without lateral spines.
(Small eyes situated nearer the posterior laterals. Mandibles often highly developed in the males, with 2—2 teeth in both sexes, set widely apart in the male. Cephalic region, in the male, with a tuft of hairs on each side about the middle, in a line with the small eyes, convex in the middle in both sexes, viewed in profile. Clypeus not higher than, often less than, one-third of the diameter of an anterior central eye. Leg i. longest in the male; leg iii. longest in the female. Bulb of palpus not produced basally beyond the apex of the tibia. Spine of bulb apical, slender, and circularly curved, somewhat as in *Sidusa*.) . . . . . [(HELORUS, Peckh.). COBANUS, nom. nov.

B. Spines beneath tibiæ i. and ii. in pairs of 2—2—2, those beneath protarsi i. and ii. in pairs of 2—2, with or without lateral spines.

i. Mandibles in both sexes with from 2—5 or 6—5 teeth. Clypeus in male not less than a full diameter of an anterior central eye; in the female (*Titanattus*, ♀ unknown) about half a diameter.

*a*. Anterior row of eyes strongly recurved . . . . . TITANATTUS, Peckh.

*b*. Anterior row of eyes only slightly recurved, by their posterior margins. (Small eyes nearer the anterior laterals. Cephalic area in the male with a tuft of hairs in front, behind and between the central and lateral anteriors; the area itself is flat in both sexes, viewed in profile. Leg i. longest in the male, leg. ii. longest in the female. Bulb of palpus not produced basally beyond the apex of the tibia; palpal spine stout, springing from the inner side of the bulb and curving round towards the apex, with its point directed across the tarsus outwards.) . . AMYCUS, C. L. Koch.

ii. Mandibles in male and female with a single tooth on the lower margin and two teeth on the upper. Clypeus usually about one-third of the diameter of an anterior central eye, often much less.

*a*. Tarsus of male palpus more elongate; bulb elongate, often attenuate and produced beyond the apex of the tibia. Palpal spine single, though sometimes bifid, springing either from the outer apical margin or from the apex of the bulb itself, not encircling the bulb in any way.

*aa*. Palpal spine of male originating from the apex of the bulb, usually slender, more or less circularly or spirally curved, less frequently shorter and stouter.

1. Mandibles normal in the male sex . . . . . SIDUSA, Peckh.
2. Mandibles very much developed . . . . . PENSACOLA, Peckh.

*bb*. Palpal spine of male originating from the inner side of the apical half of the bulb, or from the apex of the inner lobe of the bulb, the spine itself being longer or shorter, sometimes slender, often stouter, and occasionally bifid.

*a**. Palpal spine very fine, aculeate . . . . . COLONUS, gen. nov.

*b**. Palpal spine stouter . . . . . CYRENE, Peckh.

*b*. Tarsus of male palpus not elongate, but broad at the base, more or less circular, with the bulb also circular.

1. Spine of palpal bulb single, springing from the apex of the inner side. Patella iii. not developed at the apex . . . . THOTMES, gen. nov.
2. Spine of palpal bulb double; two distinct spines springing usually from the outer side, often widely separate, the inner one sometimes geniculate, the outer one usually the longest, more or less encircling the bulb. Patella iii. more or less developed at the apex. Vulva of female always with a deep, short, transverse cavity about the middle, the upper margin forming a chitinous rim . . . . . HABRONATTUS, gen. nov.

NOTE.—The genus *Pardessus* has not been included in this Table because the females alone are known to me.

## COBANUS, nom. nov.

*Helorus*, Peckham, Proc. Nat. Hist. Soc. Wisc. iii. 1, p. 28 (April 1896) (nomen præocc.*).

Type *H. mandibularis*, Peckham. Central America.

*Male*. Anterior row of eyes slightly recurved. Centrals three times at least the diameter of the laterals. Clypeus not more than one-fourth the diameter of an anterior central eye. Cephalic quadrangle broader than long, slightly wider in front. Small dorsal eyes midway between the lateral eyes of both rows (or, if anything, rather nearer to the posterior lateral eyes). Posterior laterals slightly larger than the anterior laterals. Sternum a little longer than broad, rather broader behind. Legs 1, 3, 4, 2. Coxa i. long, one-third longer than coxa ii. and more than one diameter of the segment apart at the base. Protarsi i. and ii. with 2—2—2 spines beneath and 2 small apical lateral spines. Tibiæ i. and ii. with 2—2—2—2 spines beneath and 1—1 lateral spines on the inner side. Patellæ i. with one small spine on the inner side, ii., iii., and iv. with one on each side. Protarsi iii. and iv. with three distinct rings of spines—basal, central, and apical. Tibiæ iii. and iv. with, besides lateral spines, a single minute, basal, dorsal spine. Labium scarcely longer than broad. Maxillæ long, rounded at the apex, and somewhat dilate laterally. Posterior spinners very slightly longer and more slender than the anterior pair. Mandibles either very long and divergent, or quite short, as in the females. Teeth 2—2 on the upper and lower margins of the fang-groove, widely separate when the mandible is elongated. Fang long or short according to the development of the basal segment, sometimes with an inner basal tooth.

*Female*. Characters as in the male, except that the coxæ of legs i., ii., iii., and iv. are subsimilar, those of iv. the longest. Sometimes a lateral spine outside tibiæ i. and ii. Patellæ i., ii., iii., and iv. with one spine on each side. Femur of palpus with 1—1 dorsal spines. Mandibles with 2—2 apical teeth on the upper and lower margins.

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* Latreille, Hist. Nat. Crust. et Ins. iii. p. 309 (1802) (Hymenoptera).

*Males.*

A. Mandibles elongate, divergent; teeth of upper and under sides wide apart. Fang very long. Carapace without tufts of hair on the cephalic area.

i. Fang with no tooth on the inner margin close to the base.

*a*. The two teeth on the upper margin much wider apart. Femur of palpus clothed above with a dense tuft of white hairs. Patella and tibia i. annulated at their apex with black. Femur i. dark brown; protarsus i. brown, tarsus i. yellow. Legs ii. slightly annulated with brown; iii. and iv. yellow, slightly annulated with brown. Abdomen yellow with four dark spots, having between them three or more dark ⅄-shaped marks. Tarsus of palpus long and narrow, not broader at the base. Tibia of palpus at least one-third longer than the patella. Spur shorter and broader . . *extensus*, Peckh.

*b*. The two teeth on the upper margin much closer together. Femur of palpus without tuft of white hairs. Legs without annulations. Markings on abdomen and carapace obliterated. Tarsus of palpus broader at the base. Tibia of palpus not more than one-fourth longer than the patella. Spur more slender . . . . . *unicolor*, sp. n.

ii. Fang with a tooth near the base on the inner margin . . . . . *mandibularis*, Peckh.

B. Mandibles not elongate or divergent, similar to those of the female; fang short. Cephalic area with a pair of short triangular tufts of hair above (often obliterated). Femur of palpus without tufts of white hair above. Legs i. entirely brown, the others yellow, more or less annulated with pale brown.

1. Abdomen yellow, with four dusky spots on the central posterior dorsal area. Paired teeth of mandibles situated opposite each other. Tibial spur of palpus shorter and slightly curved . . . . . *flavens*, Peckh.
2. Abdomen entirely dark olive-green above. Paired teeth of mandibles well separate. Tibial spur longer and straighter . . . . . *subfuscus*, sp. n.

*Females.*

Vulva consisting of a broad semicircular disc, divided into two symmetrical areas by a narrow, wedge-shaped, pale groove, wider behind, the rim of which curves round to the sides, then inwards towards the base, and suddenly downwards, at which point it is much blacker . . . . . *flavens*.

Note.—The legs and carapaces of these spiders are so worn that most of the hairs and scales have been obliterated. The femur, tibia, and protarsus i. are, however, evidently usually fringed with black hairs; the protarsus especially so, being also a little curved. *C. perditus* is unknown to me.

Peckham has suggested that *C. flavens* should form the type of a new genus based on the short mandibles. We have, however, an adult male example which cannot be separated from *C. extensus*, except that it has mandibles similar to those of the male of *C. flavens* (*i. e.* similar to those of the females of the genus). I suspect that these varieties of the male occur frequently, as they do in some other groups of the Salticidæ.

There are no females of either *C. unicolor* or *C. extensus* in our collection; *C. mandibularis* is unknown to me.

### 1. **Cobanus unicolor,** sp. n. (Tab. XIV. figg. 3, 3 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* Costa Rica (*Sarg*); Panama, Bugaba (*Champion*).

This species can be recognized by the absence of any tooth on the fang of the mandible, by the closer proximity of the two upper teeth of the mandible, and by the absence of dark annulations on the legs. This latter character may not, however, prove constant. The tibia of the palpus is shorter in proportion than in *C. extensus*.

### 2. **Cobanus mandibularis.** (Tab. XIII. figg. 19, 19 *a*, ♂.)

*Helorus mandibularis,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 29, t. 2. figg. 1, 1 *a–c* (♂) (April 1896)[1].

Type, ♂, in coll. Peckham. Total length 9 millim.

*Hab.* Panama[1].

No examples of this occur in our collection. It is a very large species, and may, according to Peckham, be identified by the tooth on the inner side of the fang near its base. Our figures are copied from those given by him.

### 3. **Cobanus extensus.** (Tab. XIII. figg. 20, 20 *a–g*, ♂; 21, 21 *a*, ♀.)

*Helorus extensus,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 30, t. 2. figg. 2, 2 *a*, *b* (♂) (April 1896)[1].

Type, ♂, in coll. Peckham. Total length 6–8·4 millim.

*Hab.* Panama[1], Bugaba (*Champion*).

I can find no females in our collection which can be assigned to this species: there are none large enough. The male may be recognized by the absence of any inner basal tooth on the fang, and also by the wide separation of the two teeth on the lower margin of the fang-groove. The mandibles vary considerably in length in different examples. In fig. 2 of Peckham's work[1], tibia i. is represented as with three spines only in the apical half: this must be incorrect, and suggests the genus *Dendryphantes* (sec. Peckham).

### 4. **Cobanus flavens.** (Tab. XIV. figg. 1, 1 *a–d*, ♂; 2, 2 *a–f*, ♀.)

*Helorus flavens,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 31, t. 2. figg. 3, 3 *a–c* (♂) (April 1896)[1].

Type, ♂, in coll. Peckham; deuterotype, ♀, in coll. Godman & Salvin. Total length, ♂ 5·5, ♀ 6·5 millim.

*Hab.* Panama[1].

The female is here figured and described (see Table) for the first time. The colour is yellow, the abdomen having four black spots in the apical half. It is not possible

at a glance to distinguish between this species and *Amycus quadriguttatus*, but the spinulation of the first pair of legs will determine the genus at once. The male may be recognized by the fact that the mandibles are normal, as in the female, not elongated.

### 5. **Cobanus subfuscus,** sp. n. (Tab. XIV. figg. 4, 4 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6·5 millim.

*Hab.* Costa Rica (*Sarg*).

This species may be known by the yellow legs, the first pair darker, and the dark olive-green colour of the dorsal area of the abdomen. The mandibles are normal, but the two pairs of teeth are not opposite each other. If it were not for the coloration and the shape of the tibial spur of the palpus, the form of the mandibles might indicate that *C. subfuscus* was a variety of one of the other species, but, pending the receipt of further material, I prefer to treat it as distinct.

### 6. **Cobanus perditus.**

*Helorus perditus,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 283, t. 17. fig. 19 (♂) [1].

Type ♂, gynetype ♀, in coll. Acad. San Francisco.

*Hab.* Mexico, Tepic [1].

The figure and description are not sufficiently detailed to enable one to judge of either the genus or species to which this spider belongs.

## TITANATTUS.

*Titanattus,* Peckham, Proc. Nat. Hist. Soc. Wisc. 1885, p. 62 (Dec.).

Type *T. sævus*, Peckham. Guatemala.

This genus is very closely allied to *Amycus*, differing only in the greater curvature of the first row of eyes.

### 1. **Titanattus sævus.** (Tab. XV. figg. 1, 1 *a–k*, ♂.)

*Titanattus sævus,* Peckh. Proc. Nat. Hist. Soc. Wisc. 1885, p. 63, t. 2. figg. 1, 1 *a–c* (♂) (Dec.) [1];
Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, pp. 6, 17 (April 1896) [2].

Type, ♂, in coll. Peckham. Total length 5 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*); Guatemala [1 2].

Our figures are partly taken from Peckham's work.

## AMYCUS.

*Amycus,* C. L. Koch, Die Arachn. xiii. p. 182 (1846).

Type *A. spectabilis*, C. L. Koch. Brazil.

These characters are drawn in the main from *A. benignus*, Peckh.:—*Male.* Anterior row of eyes recurved by their posterior margins; centrals twice the diameter of the laterals. Clypeus variable in size, from equal, to almost twice the diameter of, an anterior central eye, concave. Cephalic quadrangle broader

than long, slightly wider in front. Small dorsal eyes nearer the anterior laterals. Posterior laterals slightly larger than anterior laterals. Sternum a little longer than broad, rather wider behind. Legs 1, 3, 2, 4 (or 4, 2); coxa i. twice as long as coxa ii., more than one diameter of a coxa apart. Protarsi i. and ii. with 2—2 spines beneath, no small apical lateral spines; tibiæ i. and ii. with 2—2—2 spines beneath, one inner lateral spine towards the apex and sometimes extra spines on the inner side. Patellæ i. and ii. without spines, iii. and iv. with 1—1 on each side, or sometimes 1 on the inner side only (*A. longipalpis*). Protarsi iii. with two rings of spines, iv. with an apical ring and two or three spines towards the base. Tibiæ iii. and iv. without small dorsal basal spines. Labium slightly longer than broad. Maxillæ dilated at the apex, more or less laterally produced. Central and posterior spinners more slender and longer than the anterior. Mandibles not much developed, elongate or divergent, with 5—5 or 6—6 teeth. Fang short, attenuate in the middle, compressed, dilate, scimitar-shaped in the apical half.

*Female.* Eyes, sternum, and spinners as in the male. Mandibles with 2—6 or 6—5 teeth; fang normal, short. Coxæ normal, subequal. Protarsi i. and ii. with 2—2 long spines, no apical ones; iii. and iv. with apical spines and also two or three towards the base. Tibiæ i. and ii. with 2—2—2 spines, and sometimes an inner lateral spine. Tibia iv. without small dorsal basal spines. Patellæ i. and ii. without spines, iii. and iv. with one spine on the inner side.

### *Males.*

A. Mandibles more or less convex above, without any long, stout, upper inner apical marginal tooth, but with the margin produced, conical, bent outwardly, with its edge sometimes minutely serrate. Maxillæ less dilate laterally at their apex. Patella of palpus equal to, or shorter than, the tibia. Clypeus without central white tuft of hairs. (Cephalic area clothed in front with a recumbent fringe of fiery-red or white hairs. Carapace deep brown, almost black on the clypeus, sides, and postero-thoracic region, with a longitudinal white spot on the thoracic stria and a reddish tuft behind the dorsal eyes. Abdomen pale olive-brown, with darker spots, and an anterior narrow transverse white cincture, a central dorsal posterior white line, and two longitudinal white lines on each side of the middle; sides with two or more spots of white hairs. Legs i. and ii., except the basal three-fourths of the femur and often the terminal segments, deep brown; the others yellow, with dusky apical annulations.) . . . . . *benignus*, Peckh.

B. Mandibles concave above, with a long broad tooth at the inner apical upper angle, and a small sharp spine towards the outer apical angle, where the ridge of the concavity terminates. Patella of palpus longer than the tibia, sometimes nearly as long as the tibia and tarsus together. Maxillæ more strongly developed laterally at the apex. (Cephalic area clothed in front with a thick fringe of obliquely erect red hairs tipped with brown, recumbent only in the centre. Ground-colour of carapace unicolorous yellow, with a pure white tuft behind the dorsal eyes. Abdomen pale yellow, usually with four black dots more or less disconnected. Legs dull yellow-brown, often as in *A. benignus*. Clypeus with or without central white tuft of hairs.)

i. Tarsus of palpus much shorter than the patella. Patella almost as long as the tibia and tarsus together; tibia one-fourth longer

than the tarsus. No white spot in the centre of the clypeus. Tarsus and bulb smaller, more elongate.

*a*. Tibia of palpus slightly longer than the tarsus. Tibial spur parallel-sided, truncato-emarginate at the apex. Mandible with six or seven small teeth on the lower margin.

*aa*. Palpal spine stout, sinuous, its apex slightly enlarged and recurving forwards . . . . . *palpinalis*, sp. n.

*bb*. Palpal spine stout, sinuous, its apex aculeate . . . . . *longipalpus*, Peckh.

*b*. Tibia of palpus not longer than, but as long as, the tarsus. Tibial spur broad at the base and rounded, attenuate towards the apex and terminating in a blunt point. Mandible with four or five teeth on the lower margin. Palpal spine stout, uniformly curved, not sinuous, not enlarged or recurved at its apex . . . . . *quadriguttatus*, sp. n.

ii. Tarsus of palpus longer than the patella. Patella shorter than the tarsus; tibia one-half shorter than the tarsus. Tarsus and bulb larger and broader. A triangular white spot at the centre of the clypeus beneath the anterior central eyes. Palpal spine broad, geniculate on its upper outer side, and concavo-tubuliform throughout its length. Tibial spur very similar to that of *A. quadriguttatus* . . . . . *hieroglyphicus*, Peckh.; *pacatus*, Peckh.; *fallax*, Peckh.

NOTE.—The cephalic area is so liable to become rubbed that one must be very cautious in placing confidence on characters taken from the superciliary hairs and scales.

*Females.*

A. Size much larger; abdomen with four dusky spots or a more or less continuous broken band. Vulva consisting of a broad dark red-brown chitinous piece with a large transverse oval concavity near its anterior margin. Mandible with 6—5 teeth . . . . . *benignus*.

B. Size much smaller; abdomen with a pair of dusky shoulder-spots, followed by two pairs of black spots, sometimes connected, and two dusky spots just above the spinners. Vulva consisting of two large pale oval areas near the anterior margin, connected posteriorly by a transverse recurved chitinous rim about midway between the anterior and posterior margins. Mandible with 2—5 teeth . . . *quadriguttatus*.

### 1. **Amycus benignus.** (Tab. XIV. figg. 5, 5 *a–h*, ♂; 6, 6 *a–i*, ♀.)

*Triptolemus benignus*, Peckh. Proc. Nat. Hist. Soc. Wisc. 1885, p. 64, t. 2. figg. 2, 2 *a*, *b* (♂) (Dec.)[1].

*Amycus benignus*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 18, t. 1. figg. 2, 2 *b*, *d*, *e* (♂), 2 *a*, *c* (♀) (April 1896)[2].

*Amycus marjorii*, Peckh. loc. cit. p. 25, t. 1. figg. 6, 6 *a–c* (♂), 6 *d* (♀)[3].

Type ♂, gynetype ♀, of both *A. benignus* and *A. marjorii*, in coll. Peckham. Total length, ♂ 5·2, ♀ 6 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*); Guatemala, Yzabal [1 3]; Panama [2], Bugaba (*Champion*).

Having carefully examined numerous males and females from various localities of the two forms described by Peckham under the names *A. benignus* and *A. marjorii*, differentiated by the relative height of the clypeus, I have come to the conclusion that they belong to one and the same species. I cannot discover that the males differ constantly in any respect, either in the form of the tibial spur or in that of the tarsal bulb and spine. The varying height of the clypeus is a phenomenon frequent amongst spiders in the male sex. In the case of the forms under consideration, on the clypeus of those in which it is higher than the central anterior eyes will be observed an obscure transverse line: this marks the line of the normal development of the clypeus. In the specimens named *A. marjorii* the mandibles are not protruded beyond this line. In the case of those named *A. benignus* there are two forms: (1) with the connective membrane recently protruded with the mandibles, and still remaining diaphanous (in which case it is not always easy to determine the height of the clypeus); (2) with the protruded connective membrane chitinized by exposure, forming an extension of the original normal clypeal margin. Neither can I find any difference in the females collected with these two forms which would suggest that there were two distinct species.

2. **Amycus quadriguttatus,** sp. n. (Tab. XIV. figg. 7, 7 *a–c*, ♂; 8, 8 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 4·5 millim.

For characters, see the Table of the species.

*Hab.* Mexico, Teapa (*H. H. Smith*); Guatemala (*Sarg*); Panama, Bugaba (*Champion*).

It appears to me pretty certain that the female I have placed with the male of this species is identical with *A. hieroglyphicus*, Peckh.; but considering that the males of *A. quadriguttatus* are far more abundant in our collection than those of *A. hieroglyphicus* (there being only two of the latter), it is probable that the females belong to the former.

3. **Amycus hieroglyphicus.** (Tab. XIV. figg. 9, 9 *a–c*, ♂; 10, ♀.)

*Amycus hieroglyphicus,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 23, t. 1. figg. 4, 4 *a* (♀), 4 *b, c* (♂) (April 1896) [1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 6, ♀ 5·5 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*); Panama [1].

A couple of males, which I identify as this species from the drawing of the palpus, were taken in Mexico. Whether there is any difference between this and *A. fallax* it is difficult to gather from the descriptions, and unless the peculiarities represented in the figures are pointed out they lose much of their value.

### 4. **Amycus pacatus.** (Tab. XV. figg. 3, 3 *a*, ♂.)

*Amycus pacatus*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 20, t. 1. figg. 5–5 *c* (♂) (April 1896) [1].

Type, ♂, in coll. Peckham. Total length 8 millim.

*Hab.* Central America [1].

Peckham gives no distinct clue as to how this species is to be distinguished from *A. hieroglyphicus*, except that in *A. pacatus* the "falces are almost as long as the face"; while in *A. hieroglyphicus* the "falces are plainly shorter than the face" (see his Table on page 6). The value of this distinction all depends on the exact meaning one ascribes to *plainly* and *almost*. Considering the variability in the form of the mandibles in the males of the Salticidæ, one would have hoped for a more satisfactory distinction. Our figures of this and of the next species are taken from his work [1].

### 5. **Amycus fallax.** (Tab. XV. figg. 4, ♂; 5, ♀.)

*Amycus fallax*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 22, t. 1. figg. 3, 3 *a*, *b* (♂), 3 *c* (♀) (April 1896) [1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 6, ♀ 5·5 millim.

*Hab.* Panama [1].

The difference between this species and the two foregoing lies in the absence of red hairs round the eyes.

### 6. **Amycus longipalpus.**

*Amycus longipalpus*, Peckh. Proc. Nat. Hist. Soc. Wisc. 1885, p. 66, t. 2. fig. 3 (♂) (Dec.) [1]; Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 19 (♂) (April 1896) [2].

Type, ♂, in coll. Peckham. Total length 6 millim.

*Hab.* Guatemala [1 2].

Peckham says there are several species closely allied to this one, and the figures of the tarsus and palpal bulb are decidedly different from those of *A. palpinalis*. The apex of the spine is aculeate, instead of enlarged, while the tarsus itself, as drawn, is much shorter. The Table on page 6 of his work [2] leaves one to infer that the mandible has no apical apophysis, but the text describes such a tooth. It is stated on page 202 that the tibia of the palpus has a strong apophysis at the distal end, on the outer side. There may, however, be several species of which this would be true, e. g. *A. quadriguttatus*. One needs to know the length, breadth, and shape of it, if the character is to be of any practical value.

### 7. **Amycus palpinalis,** sp. n. (Tab. XIV. figg. 11, 11 *a–e*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7·5 millim.

For characters, see the Table of species.

*Hab.* Panama, Bugaba (*Champion*).

8. **Amycus spiralifer,** sp. n. (Tab. XV. figg. 2, 2 *a–e*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* GUATEMALA (*Sarg*).

This species, which was accidentally omitted from the Table (on p. 192), may be recognized at once by the stout spur or cusp on the outer anterior margin of the mandible and by the long spiraloid spine encircling the palpal bulb. The mandibles have a tuft of white hairs at the base in front.

## SIDUSA.

*Jotus,* Peckham, Proc. Nat. Hist. Soc. Wisc. 1885, p. 71 (Dec.) (nec Keyserling).
*Sidusa,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. ii. 3, p. 175 (Dec. 1895).
*Chapoda,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 26 (April 1896).
*Escambia,* Peckham, tom. cit. p. 41 (April 1896).
*Dynamius,* Peckham, tom. cit. p. 12 (April 1896).

Type of *Sidusa*, *S. gratiosa*, Peckh., Amazons; of *Chapoda*, *C. festiva*, Peckh., Guatemala; of *Escambia*, *E. conspecta*, Peckh., Guatemala.

I do not know the type-species of *Sidusa*, but *S. recondita* occurs in our collection. I am quite unable to find any definite characters to distinguish the genera here included under *Sidusa*. Peckham originally placed the genus under the Homalatteæ, on account of the posterior eyes being on the margin of the carapace and giving it a broader appearance. But if *S. recondita* be a Homalattid, so also is *Chapoda festiva* and *C. sulphurea* for the same reason; neither can one eventually keep out all the *Escambiæ*, since they present every grade in the position of the posterior eyes and in the declivity or otherwise of the posterior portion of the carapace. If *Jotus opimus* of Peckham be really congeneric with Keyserling's type of *Jotus*, from Australia, then this name will have priority over *Sidusa*.

The following characters are common to the various species included:—

Eyes of anterior row forming a line straight by the posterior margins or slightly recurved; laterals half the diameter of the centrals. Cephalic quadrangle broader than long, but variable, usually somewhat wider in front. Posterior eyes sometimes marginal, sometimes submarginal; small eyes either midway or nearer the anterior or posterior laterals. Carapace, in profile, sloping downward more or less abruptly behind the posterior eyes, or prolonged behind these eyes, and gradually declivous to the posterior margin. Tibia i. with 2—2—2 spines beneath, the last pair being basal, and the basal spine on the inner side sometimes absent, with or without lateral spines. Protarsus i. with 2—2 spines beneath, and with or without laterals. Patellæ i., ii., iii., and iv. with spines on each side, or absent or only one on i. and ii. Tibiæ i. and ii. very seldom with, and iii. and iv. with or without, a small dorsal basal spine. Protarsi iii. and iv. with three rings of spines—a basal, median, and apical group. Sternum varying from circular to being twice longer than broad. Anterior coxæ wide apart, so that the sternum is usually broad in front. Abdomen oval or elongate-oval; spinners long, slender, medians scarcely shorter than the posteriors, anterior pair stouter. Tarsus and bulb of male palpus elongate, the latter often produced basally, with an apical palpal spine, slender or sometimes stouter, circularly or spirally curved. Mandibles short, straight, vertical, with a large broad tooth beneath (but variable) and two smaller ones above.

It is quite possible that *Sidusa* as here understood will eventually be split up into various more or less natural and convenient genera, including those founded by Peckham, but it will need vastly more material before anything final can be settled.

The species known to me may be distinguished as follows:—

*Males.*

A. Mandibles not excavate in front on the inner margin.

I. Femur, patella, tibia, and sometimes protarsus and even tarsus of legs i., or i. and ii., or i., ii., iii., more or less distinctly fringed with hairs above and beneath, or on the sides.

A′. Leg i. only ornamented with fringes of hair.

i. Femur, patella, and tibia only of leg i. ornamented with long erect fringes, more noticeable above and below the tibia, which is somewhat incrassate. [Tibia of palpus with a tuft of hairs on both sides; spur short and incurved, lying close upon the bulb, its apex sharp. Apical spine making a *single* bold circular sweep, but otherwise very similar to that of allied species. Carapace orange, clothed with silver and golden-orange hairs, with cephalic area black, margined with a band of white hairs, and a central and a lateral brown band. Abdomen whitish-yellow, with many dorsal mottlings and spots of brown, more distinct in the form of dark brown chevrons towards the spinners; with a band of silvery hairs on the anterior margin, more thinly scattered over the dorsal area; ventral area yellow. Base of tibia and base and apex of protarsi iii. and iv. black. Femur of leg i. fringed above with black hairs tipped with white, patella and tibia fringed above and below, the latter black with a tuft of white scales on the inner side towards the base. Tibiæ iii. and iv. with a small dorsal basal spine.] . . *cristata*, sp. n.

ii. Femur, patella, tibia, protarsus, and tarsus of leg i. ornamented with shorter fringes of hair on the *sides* of the tibia, which is not incrassate. [Femur, patella, and tibia of palpus fringed with long hairs, but no definite tuft; spur long, sinuous, incurved upon the side of the bulb and somewhat clavate at its apex. Apical spine making a bold *double* spiral circular sweep, the centre very dilate. Carapace orange, cephalic area and margins dark, clothed with silver and golden-grey hairs; clypeus with an erect "mustache" of white hairs. Abdomen dorsally mottled with black streaks, with a black wedge-like spot above the anal tubercle; encircled with a marginal pale band, which is broken in front. Ventral area pale, with indications of longitudinal brown bands towards the spinners. Leg i. very dark brown, with short fringes of black hairs along the sides,

including even the tarsus (very different to those of *S. cristata*). Legs ii., iii., and iv. yellow, suffused and annulated with brown; tibiæ iii. and iv. with a conspicuous narrow dorsal central black band, with also a dorsal basal spine.] . . . . . *spirorbis*, sp. n.

B′. Legs i. and ii., or i., ii., and iii. fringed with hairs.

i. Femur, patella, tibia, and protarsus of legs i. and ii. only fringed with hairs. Apical spine of bulb less widely curved from its base.

*aa*. Clypeus clothed with white and grey hairs or scales, or with both hairs and scales.

* Small eyes situated midway between the anterior and posterior laterals. Fringes on legs i. and ii. more conspicuously crested and tipped with white. Tibial spur shorter and stouter. Tibiæ i. and ii., especially ii., compressed on the dorsal and inner sides, forming a spinigerous ridge. [Abdomen clothed dorsally with golden-green scales, having a series of transverse dusky-brown chevrons towards the spinners, and an anterior submarginal black band, followed by an irregular white band and some lateral brown spots. Tibiæ i. and ii. and the mandibles blue, iridescent. Tibiæ iii. and iv. with a small dorsal basal spine.] . . . . . *conspecta*, Peckh.

** Small eyes distinctly (in some cases only one-third from) nearer the posterior lateral eyes. Fringes on legs i. and ii. less distinctly crested and not tipped with white.

AA. Apical spine of bulb longer and more spiraloid.

*a*. Tibial spur of palpus very long and slender, filiform, sharp at the apex. Tibiæ i. and ii. cylindrical, not compressed on the dorsal and inner sides. Abdomen without any anterior marginal band of yellow hairs, but with a transverse white spot below the middle on each side, and another less conspicuous one on each side nearer the anal tubercle. Tibiæ i. and ii. and the mandibles brown; the middle only of protarsi iii. and iv. yellow . . . . . *albicincta*, sp. n.

*b*. Tibial spur of palpus much shorter, stouter, and bluntly pointed. Tibiæ i. and ii., especially ii., compressed dorsally and on the sides. Abdomen with a broad band of yellow hairs on the anterior margin and shoulders; a transverse white or yellow band on each side behind the middle, a few white or yellow central chevrons and a white spot on each side nearer and in front of the anal tubercle. All the legs, palpi, and mandibles more or less blue, iridescent, cephalic area

clothed with azure-blue scales. Protarsi and tarsi iii. and iv. entirely yellow. Tibiæ iii. and iv. with a dorsal basal spine . . . . . *flavida*, sp. n.

BB. Apical spine of bulb quite short and only slightly curved. [Tibial spur long and slender. Abdomen with a curved shoulder-spot of white hairs on each side anteriorly; sides of dorsal area black, apical half with a central dorsal white band, with four or five dusky chevrons; sides conspicuously white. Central spinners white, anterior and posterior pairs black. Legs and mandibles not blue or iridescent, but brown. Legs iii. and iv. yellow, suffused with brown. Tibiæ i. and ii. cylindrical, not compressed; iii. and iv. with a small dorsal basal spine.] . . . . . *brevispina*, sp. n.

*bb*. Clypeus clothed and anterior central eyes encircled with dull orange scales. [Tibial spur very long and slender, divergent, filiform, sometimes aculeate, but more often furculate at the apex; apical spine and bulb not widely curved at its base, but similar to that of *S. conspecta* and *S. albicincta*. Tibia ii. blue, iridescent, but only in some examples. Abdomen clothed with golden-green scales, with a black anterior submarginal band, followed by a narrow white band, with a short white transverse spot on each side behind the middle and a smaller white spot on each side, nearer together, in front of the anal tubercle. Legs unicolorous brown or dull yellow. Tibiæ i. and ii. not compressed; iii. and iv. with a small dorsal basal spine.] . . . . . *lutea*, sp. n.

ii. Legs i., ii., and iii. with fringing hairs, those of the latter more decidedly crested. Apical spine of bulb much more widely curved from its base and more spiraloid. [Tibial spur very long and slender, often widely divergent, filiform, and aculeate at its apex. Tibia and protarsus iii., sometimes also i. and ii., blue, iridescent, the former compressed dorsally and on the sides. Abdomen variable, with or without a large central anterior dorsal spot of yellow hairs, always with a short transverse white spot or bar just beyond the middle, and another smaller white spot on each side, nearer together, towards the anal tubercle. Carapace with a broad white marginal band on the posterior half, besides other white spots of scales (usually more or less rubbed off) on the cephalic area. Tibiæ iii. and iv. with a dorsal basal spine.] . . . . . *spiralis*, sp. n.

II. Legs i., ii., and iii. not fringed with hairs.

*aaa*. Legs i. and ii. thickly clothed with black hairs. [Tibial spur long and slender, apical spine spiraloid. Carapace with a white

marginal band. Abdomen with a brown spot on each side just before the middle and a row of brown chevrons towards the spinners. Femora i. and ii. blue, iridescent. Ventral area black, with two narrow longitudinal white lines. Tibiæ iii. and iv. with a dorsal basal spine.] . . . . . *binotata*, sp. n.

*bbb*. Legs i. and ii. not thickly, but only sparsely and normally, clothed with hairs.

A[b]. Maxillæ normally developed, not unusually dilate at the apex or deeply emarginate on the outer side. Sternum scarcely longer than broad.

i. Abdomen yellow-brown or olive-green, with a broad pale dorsal central band somewhat dilate behind the middle.

*a*. Patella of palpus dilate *before the middle of the outer margin*. Femur of palpus with a stout conical spur beneath, at the apex. Palpal spine longer and more slender. [Femur of palpus with a tuft of white hair at the apex above.] . . *festiva*, Peckh.

*b*. Patella of palpus not dilate on the outer margin. [Femur of palpus much longer (*S. inermis*) or shorter (as in *S. festiva* and *S. recondita*), but without any conical spur beneath at the apex. Palpal spine shorter and stouter.]

*a'*. Femur of palpus longer. Cephalic area with two erect tufts of hair just before the middle. [Femur of palpus with a tuft of white hairs at the apex above.] . . . . *inermis*, sp. n.

*b'*. Femur of palpus shorter. Cephalic area without the two erect tufts of hair just before the middle. [Femur of palpus with a tuft of white hairs above at the apex.] . . . . . *recondita*, Peckh.

ii. Abdomen brown or black, with a sulphur-yellow shoulder-spot, a short transverse band on each side just behind the middle, and a pair of smaller spots, nearer together, toward the anal tubercle. [Tibial spur of palpus a little longer than the segment, sparsely truncate at the apex (possibly accidental). Bulb not developed at the base, with a fine curved spine at the apex, forming a small but complete circle, its point slightly recurved. (Femur of palpus without any definite tuft of white hairs at the apex above.)] . . . . . *sulphurea*, sp. n.

iii. Abdomen yellow, with a narrow black central dorsal band extending from the anterior margin to the spinners, where it gradually attenuates to a point. [Tibia of palpus with a blunt protuberance beneath at the base; apical spur slender, straight, blunt, minutely serrulate beneath, directed obliquely forward; the tibia itself, viewed from the outer side, being as long as broad. Bulb very large, developed and attenuate basally. Apical spine stout, short, circularly curved; viewed

from the inner side it appears bifid, owing to the base being very protuberant.] . . . . . *nigropicta*, sp. n.

B$^b$. Maxillæ highly developed, dilate, the outer margin so deeply emarginate as to leave the outer apical angle strongly recurved and a stout conical tooth about the middle. Sternum twice longer than broad. [Patella of palpus dilate *behind the middle of the inner margin*; tibia with a conspicuous concavo-conical spur beneath; femur without any spur beneath. Bulb small (as in *S. festiva*), attenuate, and curved basally, apical spine short, stout, spirally curved. Femur of palpus without a tuft of white hairs at the apex above.] . . . . . *maxillosa*, sp. n.

B. Mandibles more or less excavate on the inner margin in front. Legs 1, 4, 2, 3.

i. Excavation of mandibles simple, without any cusp-like tooth in the middle.

*a*. Bulb of palpus much more elongate, either abruptly notched or broadly excavate on the inner basal margin.

*a'*. Bulb of palpus abruptly notched on the inner basal margin; apical spine shorter, quite slender. Tibia with a single slender spur. Legs unicolorous brown. [Carapace and legs clothed with azure-blue scales. Clypeus not clothed with white hairs. Abdomen with black shoulders, followed by a patch of yellow hairs, and, in the apical half, five or six dusky brown chevrons. Excavation of mandibles gradual, not confined to the middle of the inner margin.] . . . . . *excavata*, sp. n.

*b'*. Bulb of palpus not abruptly notched, but broadly and deeply excavate on the inner basal margin; apical spine broad, flat, circular, slightly dilate at the apex. Tibia with two spurs, having a small cusp between; the upper spur more slender, but short, curved, and sharp, the lower stouter, straight, but also short. Legs i. brown, ii., iii., and iv. yellow with black annulations. [Clypeus with a fringe of white hairs; carapace brown, with a broad band of white hairs round the cephalic area behind the posterior eyes. Abdomen brown, with an anterior marginal pale band, a transverse continuous post-median cincture uniting with another above the spinners, to isolate a large transverse oval brown patch, with two pale chevrons on its disc; ventral area with a broad sooty-black central band extending from the genital rima almost to the spinners.] . . . . . *nigriventer*, sp. n.

*b*. Bulb of palpus less elongate, not notched, abruptly constricted or excavate on the inner basal margin. [Legs ii., iii., and iv. yellow, annulated with black or brown. Carapace and legs without azure-blue scales. Clypeus and base of mandibles clothed with

white hairs. Abdomen without black or yellow shoulder-spots, but with a more or less connected central dorsal black band. Excavation of mandibles abrupt, confined to the centre of the inner margin in front.]

1. Leg i. longer in proportion. Apical spine of palpal bulb much less widely spiraloid . . . . . *penicillata*, sp. n.
2. Leg i. shorter in proportion. Apical spine of palpal bulb longer and more widely spiraloid . . . . . *minuta*, sp. n.

ii. Inner excavate margin of the mandibles in front with a stout cusp-like tooth about the middle. Apical spine of palpal bulb stout, widely curved, having a cusp on its outer margin . . . . . *dentichelis*, sp. n.

*Females.*

A. Protarsus i. without lateral spines either on the inner or outer side, in addition to the two pairs beneath.

i. Tibiæ iii. and iv. with a small dorsal basal spine on each. Tibia i. with one or more lateral spines on the inner side alone, or on both sides.

*a*. Tibia i. with one or more lateral spines on each side. [Vulva with a pair of closely approximate brown discs a quarter of their diameter apart, one-half their diameter from the genital rima, each connected with an orifice by a curved duct, the concavity of the curve being directed inward; behind these lie a pair of elongate, convergent, indistinctly visible sacs.] . . . . . *olivacea*, sp. n.

*b*. Tibia i. with one or more lateral spines on the inner side only.

1. Abdomen unicolorous yellow, with a central dorsal band of indistinct chevrons. Cephalic area, as far as the central stria, black; or, abdomen with a broad dorsal dark pattern, ending in a very dark V-shaped mark just above the spinners, lateral area pale, lower lateral area streaked with black. Legs in both varieties unicolorous yellow. Vulva variable, forming an obtuse triangle, with a pair of conspicuous black spots situated anteriorly, each connected with ducts which curve slightly backward then inward, where they coalesce on the central line and, diverging again on the posterior margin, are lost; on each side of this central line lie a pair of more or less distinct convolutions of the oviducts . . . . . *nigrina*, sp. n.
2. Abdomen dark brown, with a white V-shaped band immediately above the spinners; lateral area brown. Legs very decidedly annulated with black. Carapace brown and clothed to the central stria with white hairs. Vulval area very large, forming a broad transverse oval, divided into two oval areas by a central chitinous septum. For further details, see Plate . . . . . *albida*, sp. n.
3. Carapace dull brown; abdomen ochreous-yellow, speckled with black and with a ⋀-shaped central dusky mark. Vulval

area obtuse triangular, consisting of a pair of oval areas, their outer margins slightly sinuous, divided in the central line by a narrow septum, with a pair of large indistinct adjacent discs near the posterior margin. For further details, see Plate . . *pallida*, sp. n.

4. Carapace brown, cephalic area darker. Legs yellow, only very indistinctly annulate. Abdomen pale ochreous-yellow, more or less distinctly mottled with brown and black spots, the most conspicuous being a small anterior central dorsal horse-shoe mark, a ⩘-shaped mark at the middle, and a small, distinct, black, wedge-shaped mark just above the spinners. Vulval area* broad transverse-oval, but variable in form, consisting of a pair of oval or circular-oval discs, divided by a narrow septum. For further details, see Plate . . . . . *vittata*, sp. n.

ii. Tibiæ iii. and iv. without any dorsal basal spine. Tibia i. without any lateral spines on either side.

1. Carapace brown; abdomen pale, with speckles and markings very much as in *S. vittata*; legs very distinctly annulated with black. Vulval area broad transverse-oval, the posterior margin sinuous, divided, though not very definitely, into a pair of oval areas, each with a pair of dark adjacent circular discs situated close to the genital rima, their inner margins forming a curving duct leading to black spots on the anterior portion of each area . . . *penicillata*.

2. Carapace brown, with rose-pink iridescence, posterior lateral margin with a broad blotch of yellow scales. Abdomen brown, with a pair of yellow shoulder-spots, a pair of curved transverse yellow bars behind the middle, followed by two or three small central spots, a larger yellow spot just above the spinners and one on each side of it. Legs unicolorous yellow-brown, i. and ii. darker. Vulval area elongate-oval, with a pair of sometimes adjacent, sometimes slightly separate, dark circular discs situated on the genital rima, in front of each being a spiraloid duct of about the same diameter as the discs, connected with a central black spot . . . . . *sulphurea*.

B. Protarsus i. with lateral spines on both sides, in addition to the two pairs beneath.

i. Tibiæ iii. and iv. with a small dorsal basal spine on each.

*a*. Tibia i. with one or more lateral spines on the inner side only.

*aa*. Carapace without any broad lateral posterior marginal band of white or yellow scales.

1. Abdomen golden-buff, with a broad black anterior marginal band, followed by a sinuous white line on each side not united in the middle; a pair of black posterior dorsal spots,

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* It is possible that the varieties of *S. nigrina* and *S. vittata* figured may really belong to a distinct species, but I hesitate to separate them on so few examples.

with a circular white bar on each side, together forming a transverse "parenthesis," each being often broken up into two separate spots. Legs yellow, annulated with brown or black. Vulva very distinct in form, consisting of a pair of larger adjacent central circular dark discs, well removed, nearly two diameters, from the genital rima, and a smaller oval dark spot on each side, its position not always constant, connected with the others by a duct sweeping backward in a circular lobe, with also another shorter circular connecting duct beneath . . . . . *voluta*, sp. n.

2. Abdomen with a broad anterior marginal band of sulphur-yellow scales, followed by a transverse white bar on each side; just behind the middle are two very small central dots, and two small, but more conspicuous, white spots, widely separate, above the spinners. Vulva consisting of a pair of circular adjacent dark discs, one-fourth their diameter distant from the genital rima, with a very widely curved spiro-circular duct, connected with a central dark spot . . *flavida*.

3. Abdomen rich black-brown, with an anterior dorsal curving hieroglyphic white band on each side, not connected on the front middle line, followed to the spinners by a broad central pale band, relieved by a series of five or six brown chevrons; lateral area streaked with black anteriorly, but white in the posterior half. Vulval area broad, transverse-oval, with a large, dark, reniform disc on each side of the anterior lateral margin, and a pair of obliquely transverse-oval dark discs, posteriorly, about one transverse diameter from the genital rima, with a pair of dark black spots in the central portion between the reniform discs . . . . . *brevispina*.

*bb*. Carapace with a broader or narrower posterior-lateral marginal band of white or yellow hairs and scales.

1. Abdomen brown and white mottled, with a central pale band, resolved into five or six pale chevrons, to the spinners, and four white spots, set in brown patches, the first pair smaller, the second larger and transverse. Legs orange-yellow, with dusky annulations. Vulval area transverse-oval, emarginate before and behind, divided into a pair of large circular-oval adjacent discs, whose outer margin curves inward, forming a duct, becoming enlarged towards the centre and terminating in a large black spot . . . . . *quadriguttata*, sp. n.

2. Abdomen brown, with a pair of slender parallel anterior marginal white lines, followed by a central spot of orange hairs, and a pale central band, more or less broken up into chevrons, to the spinners. In the posterior half are two

longitudinal lateral black spots, with a pair of white marks forming a "parenthesis," often broken in the middle to form four white bars (as in *S. quadriguttata*). Legs yellow-brown, first pair darker. Vulval area broad, transverse-oval, situated on the genital rima, divided into a pair of large circular adjacent areas (or discs), each with a spiro-circular duct terminating in a central spot . . . . . *fulvoguttata*, sp. n.

3. Abdomen brown, with an anterior marginal black band, followed by a narrow white band not interrupted in the middle, continued obliquely at least two-thirds along the lateral margin. Dorsal area with the usual circular white "parenthesis-like" mark on each side. Legs yellow, apical half of femora and extreme apex of each segment annulated with brown. Vulval area forming a triangular pentagon, longer than broad, apex obtuse, with a pair of small adjacent circular discs half a diameter from the genital rima, bounded by a duct which terminates in a dark spot on the posterior lateral margin of each . . . . . *murcida*, sp. n.

4. Abdomen brown, with two slender transverse white lines across the anterior dorsal area, followed by a straight transverse narrow white band just behind the middle and a short oblique white band just above the spinners on each side. Legs brown, mottled with white hairs; tarsi paler. Vulva consisting of a transverse-oval area, about its own diameter from the genital rima, with a pair of spiro-circular ducts curving inwards and terminating behind in a pair of piriform circular adjacent dark discs, their posterior margins almost in contact with the genital rima . . . . . *circumcincta*, sp. n.

*b*. Tibia i. with one or more lateral spines on both sides.

*aa*. Vulva not presenting two pairs of adjacent (a larger posterior and a smaller anterior pair) dark discs close to the genital rima, but a pair of large circular or oval areas either on or remote from the rima, either adjacent or divided by a septum.

*a'*. Abdomen with an anterior marginal continuous band of white hairs.

1. Abdomen brown, with a black anterior marginal band followed by a thin encircling white line, extending obliquely a little down the sides; a pair of oblique white spots lie above the spinners, connected with a narrow white transverse cincture just behind the middle. Legs yellow, more or less suffused with brown. Carapace with a posterior lateral marginal band of white hairs. Vulva consisting of a pair of large oval-circular areas, in contact on their inner margins, touching the genital rima,

with a pair of elongate piriform dark posterior discs, each connected with a dark angularly curved duct, appearing in the centre of each area, and a pair of larger somewhat circular dark discs just beneath the anterior margins of each area . . . . . *albicincta.*

2. Abdomen with a broad black anterior marginal band, followed by a broad pale encircling band, extending obliquely down the sides; with a broad pale central dorsal band, angular in the middle, resolved into chevrons above the spinners; with a conspicuous white and black twin-spot on each side just beyond the middle; lower lateral area with a longitudinal white speckled band. Vulva consisting of a transverse-oval area, its own diameter from the rima, divided into a pair of spiro-circular areas, the spiral duct terminating in a central black spot; between these and the rima lies, more or less distinctly, another spiral duct, in some examples connected with a small dark circular disc . . . . . *conspecta,* Peckh.

*b'*. Abdomen very distinctly marked with a large pale orange oblique shoulder-spot, followed by a central pale band, resolved into a series of pale chevrons, to the spinners, with a pair of white spots nearer together about midway and four white spots further apart in the apical half; lateral area brown. Vulva consisting of a pair of large oval adjacent areas, a quarter of their diameter remote from the genital rima, each with a short spiro-circular duct connected with a central dark spot . . . . . *alacris,* Peckh.

*bb*. Vulva presenting two pairs of adjacent dark discs close to the genital rima, a larger posterior and a smaller anterior pair.

1. Sternum almost twice longer than broad. [Carapace brown, margined with white, including the clypeus. Abdomen olive-brown, with an anterior marginal black line and five or six pale chevrons towards the spinners; ventral area pale, with a broad central sooty-black band. Vulval area broad, oval-circular, transverse, divided anteriorly into a pair of ellipsoidal cavities, separated by a narrow septum, with a pair of larger oval transverse dark discs situated on the genital rima, and a pair of smaller oval brown discs longitudinally situated on each side of the central septum.] . . . . . *maxillosa.*

2. Sternum scarcely longer than broad, almost circular.

*a*[1]. Cephalic area clothed with rose-pink scales, a short central and a broad posterior-lateral marginal band of white hairs. Abdomen dark olive-brown, with a broad central-dorsal pale band, widening, dilate behind and narrowing

to the spinners; down its centre runs a narrow dusky band, resolved into chevrons, to the spinners. Vulva consisting of an anterior transverse-oval area, half its diameter distant from the genital rima, with a pair of larger oval adjacent dark discs transversely situated on the rima, with another pair of small adjacent dark discs longitudinally situated and slightly overlapping the larger pair; at this point is a pair of dark spots connected with a circularly curving duct which bounds the anterior transverse-oval area . . . . . *recondita*, Peckh.

$a^2$. Cephalic area very distinctly yellow, margined round the eyes with black; carapace with a broad patch of white scales on the posterior-lateral margin. Abdomen very similar in pattern to that of *S. recondita*. Vulva also very similar; forming a transverse-oval area divided by a narrow septum into a pair of circular-oval areas, half a diameter distant from the rima, with a pair of large dark adjacent oval discs transversely situate, and a small pair of adjacent oval spots obliquely situate in front of the former and slightly overlapping them; these are, however, much smaller than in *S. recondita*, but are similarly connected by a black spot with a circularly curving duct . . *festiva*, Peckh.

ii. Tibiæ iii. and iv. without any small dorsal basal spine.

1. Carapace yellow, cephalic area and eyes margined with black. Legs and palpi pale yellow, with dusky apical and basal annulation on each segment. Abdomen very pale olive-green, with a pale central dorsal scalloped band, broadly dilate behind, above the spinners. Vulva consisting of a broad transverse-oval area, with a pair of large circular adjacent transverse-oval dark discs, each connected by a broad duct with a dark spot near the anterior margin of the area; beneath each spot lies an indistinct pale disc . . . . . *marmorea*, sp. n.

2. Carapace brown, cephalic area black, with a broad pale band behind the posterior eyes and continued to the anterior margin on each side. Legs unicolorous yellow. Abdomen rich brown or black, mottled, with a broad pale band encircling the anterior margin and continued obliquely down the sides; posteriorly is a large transverse-oval black spot with a pair of pale spots in its centre, cut out by a pale band which broadens to the spinners, bearing one or more central black spots. Vulva consisting of a pair of white auriculoid areas confluent on the central line, with a pair of dark oval adjacent discs behind, not quite one diameter distant from the rima, connected by a slender duct with a dark spot, each spot also connected with the duct which encircles the area . *nigriventer*.

*General Characters.*

The males and females may also be recognized by the following characters:—

A. Dorsal area of abdomen pale, with either a broad or narrow, dark, broken or unbroken central band.

$a^1$. Central band narrow, black, continuous, extending from the anterior margin to the anal tubercle, becoming gradually attenuate . . . . *dentichelis, minuta, nigropicta.*

$b^1$. Central band broader, more or less diffused over the whole dorsal area, though with a darker central bar; usually with a pale continuous marginal band, but often having only a pale **V**-shaped spot in front of the anal tubercle . . . . . *penicillata, vittata, cristata, albida, spirorbis, nigrina.*

B. Dorsal area of abdomen pale, either mottled with olive-green spots or with a paler, broad, central band, dilate behind, with or without a pair of lateral spots about the middle . . . . . *festiva, inermis, recondita, maxillosa, marmorea, olivacea, pallida.*

C. Abdomen black, with either an anterior broken or unbroken white or yellow band, or a pair of white or yellow shoulder-spots, of variable form; followed by a continuous or broken post-median transverse bar, and another bar nearer the anal tubercle; both these are sometimes continuous as a girdle, or broken to form an anterior pair of elongate transverse spots and another posterior pair of smaller spots, nearer together, in front of the anal tubercle.

$c^1$. Posterior band continuous to form a uniform pale unbroken girdle (in *S. murcida* probably sometimes broken) . . . . . *nigriventer, murcida.*

$c^2$. Posterior band more or less broken in front or behind, or on each side.

$d^1$. Anterior portion of abdomen with a pair of parallel transverse narrow white lines . . . . . *fulvoguttata.*

$d^2$. Anterior portion of abdomen with a single continuous or broken pale band, or a pair of shoulder-spots.

$e^1$. Anterior band continuous. [Posterior lateral bands broken up into four small spots, the anterior pair larger.] . . . . *albicincta, lutea, spiralis.*

$e^2$. Anterior band broken in front. [Anterior lateral bands broken up into four spots, the anterior pair larger, transverse.] . . *voluta, sulphurea, flavida.*

*S. quadriguttata, conspecta, circumcincta, alacris,* and *brevispina* stand rather apart from the above, while in *S. excavata* and *binotata* the abdominal pattern has been slightly obliterated.

### 1. **Sidusa festiva.** (Tab. XVI. figg. 1, 1 *a–e*, ♂; 2, 2 *a–g*, ♀.)

*Chapoda festiva,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 26, t. 1. figg. 7, 7 *c*, *d* (♂), 7 *a*, *b* (♀) (April 1896) [1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 5, ♀ 6 millim.

Legs brown, i. and ii. darker; tarsus i. yellow. Carapace brown. Cephalic area coloured white or yellow (probably white in fresh specimens), owing to an aggregation of cretaceous pigment cells beneath the epidermis, its sides deep black; posterior lateral margin with a patch of white scales or hairs. Apex of femur of palpus with a thick tuft of white somewhat clavate hairs. Abdomen dull whity-brown, speckled with darker brown, exhibiting on each side of the lanceolate heart-area a row of cretaceous-white spots, with a dense central dorsal band of the same in the apical half. Sternum pale yellow and ventral area dusky brown. Spinners white, their outer sides suffused with brown. Palpus very characteristic, incrassate. Femur strongly curved, with a thick bunch of clavate hairs at its apex above. Patella longer than broad, narrower behind, much enlarged on the outer side towards the apex. Tibia scarcely longer than broad, narrower behind, with a short, sharp, straight, slender spine at its outer apical angle. Tarsus narrow, longer than the tibia; bulb dilate behind on the outer side, with a slender spiraloid spine at its apex.

*Hab.* GUATEMALA [1] (*Sarg*).—BRAZIL, Chapada [1].

One cannot doubt that our examples from Guatemala are identical with Peckham's species, though it must be borne in mind that his figure of the tibia of the palpus is drawn quite twice longer than broad; but the description gives it as nearly as wide as it is long, thus agreeing with our examples. Peckham has not given any drawing of the vulva of the female, which is here figured, so far as I know, for the first time. The enamelled covering of scales with the crackled appearance on the cephalic area and the abdomen, mentioned by Peckham, lies of course beneath the epidermis and consists of aggregations of cretaceous pigment cells; in one example they are entirely absent from the abdomen. The males, though somewhat rubbed, present two similar tufts of hair about the middle of the cephalic area to those present in *S. inermis*. The species is liable to be confused with *Titanattus sævus*, Peckh.

2. **Sidusa inermis,** sp. n. (Tab. XVI. figg. 3, 3 *a–c*, ♂; 4, 4 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 6 millim.

*Hab.* MEXICO, Teapa (*H. H. Smith*); COSTA RICA (*Rogers*).

The type-specimen is from Costa Rica. The coloration is almost exactly as in *S. festiva*, except that the femur of leg i. is much darker (in *S. festiva* it is usually yellow, though slightly suffused with brown in some examples). The abdominal pattern is less distinct in *S. inermis*, but practically the same in both species. The best distinctive character will be found in the femur of the palpus, especially when seen from the inner side, it being much longer than in *S. festiva* and without the stout curved spur at the apex beneath, so conspicuous in that species. Other differential characters will be found mentioned in the Table. The male has a conspicuous erect tuft of dark hairs just before the middle of the cephalic area on each side. In this respect it resembles *Titanattus sævus*, except that in the latter the tufts are nearer the anterior eyes. Superficially, the two spiders look identical, on account of these tufts of hair. The female was not detected till after the Table was printed: for the vulva, see the Plate.

### 3. **Sidusa recondita.** (Tab. XV. figg. 6, 6 *a*, *b*, ♂; 7, 7 *a–d*, ♀.)

*Sidusa recondita*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 96, t. 7. figg. 6–6 *b* (♀) (April 1896)[1].

Type, ♀, in coll. Peckham; deuterotype, ♂, in coll. Godman & Salvin. Total length, ♂ 3·5, ♀ 4 millim.

♂ ♀. Carapace brown, sides involving the lateral eyes and posterior portion much darker, almost black. A short central band of white hairs behind the thoracic stria, and a broad postero-lateral marginal band of white hairs. Cephalic area covered with pink iridescent scales. Abdomen dark olive-brown, with a broad centro-dorsal pale band gradually widening and suddenly dilate behind immediately above the spinners, narrowing again to the latter. Down the middle of this band runs a sooty-black band, becoming broken up into distinct chevrons towards the spinners. A pale band runs along the antero-lateral margin, discontinued in front, suddenly enlarged behind, and running upwards dorsally, about the middle of the abdomen; seen from above, this portion appears as a pair of white spots. Lower lateral area sooty, followed by a broad pale band; ventral area sooty. Legs yellow, browner in the male, with the first two pairs darker.

Palpus of the male with an apical tuft of white hairs on the femur, similar to that of others of the genus, but the femur is not produced below; the patella is as long as the tibia; the bulb is attenuate behind, and the apical spine forms a short circular curve. There is a long slender tibial spur. For further details, see the Table of species. Vulva of the female characteristic: area broader than long, with two pairs of distinct spermathecal spots, one pair larger, adjacent, and transversely situated on the posterior margin, the other pair smaller longitudinally, or slightly obliquely situated immediately behind the former, the posterior end darker and overlapping. In individual examples the precise form varies a little.

Tibia i. and protarsus i. with lateral spines on both sides; tibiæ iii. and iv. with dorsal basal spines.

*Hab.* GUATEMALA (*Sarg*); PANAMA, Bugaba (*Champion*).

### 4. **Sidusa maxillosa,** sp. n. (Tab. XV. figg. 8, 8 *a–e*, ♂; 9, 9 *a–e*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 6, ♀ 7 millim.

♂. Carapace, palpi, and legs entirely brown, the former, including the clypeus, margined with white; legs iii. and iv. paler. Abdomen olive-brown, with an anterior marginal black line, with five or six pale chevrons in the apical third. Ventral area pale, with a broad central sooty-black band. Sternum entirely yellow.

♀. Carapace, palpi, and legs yellow; carapace suffused on the cephalic area and sides with brown, margined as in the male. Abdomen paler, but, as in the male, with anterior marginal dark line and two larger anterior dorsal pale chevrons followed by five smaller and more adjacent ones to the spinners. Ventral area as in the male, and sternum yellow.

♂. Patella of the palpus dilate *behind the middle* of the *inner* margin. Tibia of palpus with a conspicuous concavo-conical spur beneath. Femur of palpus without any spur beneath and without any tuft of white hairs at the apex above. Palpal spine stout and spiraloid. Maxillæ highly developed, dilate, the outer margin so deeply emarginate as to leave an outer apical angle hooked and directed backward, and a stout conical tooth about the middle. Sternum oval, elongate, almost twice longer than broad.

♀. Female very like the male generally, but with the maxillæ not abnormally developed, simply dilate at the apex. Fang-grooves with two smaller teeth on the upper, and one large, broad tooth on the lower, margin. Vulva very similar to that of *S. festiva*, consisting of a broad oval area, divided anteriorly into a pair of ellipsoidal cavities separated by a narrow septum, with a pair of larger, oval, dark adjacent spermathecal spots transversely situate on the posterior margin, and a pair of smaller, oval, brown spots longitudinally situate on each side of the septum just in front of but not overlapping the larger spots.

*Hab.* GUATEMALA (*Sarg*).

One would be inclined to propose a new genus for this species, or at any rate to separate it from *Sidusa*, on account of the very great difference in the form of the

sternum in both sexes. But the palpi of the male and the vulva of the female are remarkably similar to those of *S. festiva*.

### 5. **Sidusa marmorea,** sp. n. (Tab. XV. figg. 10, 10 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

Carapace yellow, cephalic area and eyes margined with black, with two brown, convergent, indistinctly defined bands behind the posterior lateral eyes, and a broad pale marginal band, with a narrow dark brown marginal line. Abdomen (pubescence worn off) very pale olive-green, with a pale central dorsal scalloped band, broadly dilate above the spinners, and other large pale mottlings on the sides; ventral area and sides pale, mottled with pale olive-green. Legs and palpi pale yellow, each segment with a dusky black basal and an apical annulus.

Vulva consisting of a broad transverse oval area, with a pair of dark circular adjacent, confluent, spermathecal spots on the posterior margin, each connected with an orifice by a narrow duct visible beneath the epidermis, and beneath each orifice lies a very indistinct pale oval spermathecal spot. Tibiæ iii. and iv. without dorsal basal spines; tibia i. and protarsus i. with lateral spines on both sides.

*Hab.* PANAMA, Bugaba (*Champion*).

### 6. **Sidusa olivacea,** sp. n. (Tab. XV. figg. 11, 11 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

Carapace brown, more or less clothed with white hairs, with an indistinct pale band running from the central stria to the posterior margin, and one or two pale submarginal spots. Cephalic area and eyes margined with black. Abdomen olive-green, with a central deeply scalloped pale band, divided into three, the first portion elongate-triangular, the second with a large divergent lobe on each side, the third forming a narrower triangular spot above the spinners; sides olive-green, ventral area pale. (The pubescence, however, is worn off, so that it is difficult to describe exactly the pattern and colour of the abdomen.) Legs yellow, with a basal and an apical dusky annulus on each segment.

Small eyes distinctly nearer the anterior laterals. Protarsus i. without lateral spines; tibia i. with 1—1 lateral spines on each side; protarsus and tibia ii. with lateral spines; tibiæ iii. and iv. with a dorsal basal spine. Vulval area forming a broad triangle, with a pair of closely approximate circular spermathecal spots half their own diameter from the posterior margin, connected with the usual pair of orifices by a narrow curved duct, while in front lie another pair of elongate dusky spermathecal spots.

*Hab.* GUATEMALA (*Sarg*).

### 7. **Sidusa pallida,** sp. n. (Tab. XV. fig. 12, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

Carapace dull brown, clothed with white hairs; no marginal band of white. Abdomen pale ochreous-yellow, speckled with dusky black and with a central broad ⋀-shaped black mark, and an indistinct wedge-shaped dark mark above the spinners (very similar to that of *S. vittata*). Legs yellow, obscurely spotted with dusky brown.

Tibia i. with lateral spines on the inner side; protarsus i. with no lateral spines on either side; tibiæ iii. and iv. with a small dorsal basal spine. Small eyes distinctly nearer the posterior laterals. Vulva consisting of a pair of oval areas, narrower in front, their outer margins slightly sinuous, with a pair of very large internal brown adjacent discs close to the posterior margin.

*Hab.* GUATEMALA (*Sarg*).

8. **Sidusa dentichelis,** sp. n. (Tab. XV. figg. 13, 13 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

This species is in general appearance very similar to *S. minuta* and *S. penicillata*, but may be recognized by the tooth on the inner excavated margin of the mandibles and the cusp on the outer margin of the widely curved apical palpal spine.

9. **Sidusa minuta,** sp. n. (Tab. XV. figg. 14, 14 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

Carapace clothed with white and golden-orange hairs and scales. Abdomen with a central dorsal wedge-shaped dark band, and clothed with golden-orange scales and hairs, and with dull white hairs on the sides.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

Recognizable by the excavate mandibles, and the more widely sweeping spiraloid curve of the spine at the apex of the bulb.

10. **Sidusa nigropicta,** sp. n. (Tab. XV. figg. 15, 15 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4 millim.

Carapace dark brown, cephalic area almost black, thoracic area with a pale lateral, indistinctly defined band on each side, extending from behind the posterior lateral eyes to the posterior margin. Abdomen dull white, or possibly pale yellow, thinly speckled with brown, with a central longitudinal black band, broader in front, narrowing to the spinners, with two slight pointed offshoots on each side; lateral margins black, lower lateral and ventral areas pale. Sternum dull yellow. Palpi brown. Legs yellow, i. and ii. darker, often quite brown; femora iii. and iv. with a basal and apical dark annular spot, the tibia and protarsus also with a dusky basal annular spot.

Small eyes distinctly nearer the posterior laterals. Tibia and protarsus i. with lateral spines on the inner side only. Tibiæ iii. and iv. with a small dorsal basal spine. Palpal bulb enlarged, protuberant at the base, not narrowed, but very similar to that of other species of the group; apical spine stout, forming an almost complete circle; tibial spur long, slender, pointed, slightly serrate beneath towards the apex. Sternum distinctly longer than broad. Mandibles weak, not developed, with a single broad tooth on the inferior margin and two small subsimilar teeth on the upper.

*Hab.* Panama, Bugaba (*Champion*).

11. **Sidusa penicillata,** sp. n. (Tab. XVI. figg. 5, 5 *a*, *b*, ♂; 6, 6 *a–c*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 7, ♀ 8 millim.

♂. Carapace clothed with brown, white, or orange hairs. Abdomen whitish-yellow, with a broad, central, dorsal, brown, dentated band, consisting of two pairs of dark spots, more or less connected, and an apical triangular black spot. The first two pairs of spots are often resolved into a pair of ⋀-shaped black marks. Along the sides are a pair of pale spots, with a pencil of white hairs issuing from them, while on each side of the apical dark spot is a white spot, these often coalescing to form a single white, semicircular, pale bar, entirely embracing the dark spot posteriorly. Ventral area dark brown or speckled with black. Clypeus and base of mandibles clothed with white hairs. Posterior margins of anterior central eyes encircled with orange hairs.

♀. The coloration is practically the same as in the male. The form of the vulva is shown on the Plate. The

figure (fig. 6 *b*) exhibiting what I believe to be the vulva of the immature female may possibly represent that of a distinct, though exceedingly closely allied, species.

*Hab.* Mexico, Omilteme, Orizaba (*H. H. Smith*); Guatemala (*Sarg*).

It can be recognized by its excavate mandibles and brown mottled colour. See Table of species.

### 12. **Sidusa vittata,** sp. n. (Tab. XVI. figg. 7, 7 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

Carapace brown, cephalic area darker, more or less clothed with white hairs, no marginal white band. Legs yellow, the apex of the segments slightly suffused with dusky brown. Abdomen pale, more or less distinctly mottled with black streaks and spots; there is a more conspicuous, but small, recurved horseshoe-shaped dorsal dark mark anteriorly, a central broad ⟋⟍-shaped black slender mark about the middle, followed, just above the spinners, by a small but distinct black wedge-shaped mark. Ventral and lateral areas pale and speckled with sooty-black. In some examples these marks are almost obliterated. Vulva variable, according to the amount and disposition of the pigment present: see Plate. Tibia i. with lateral spines inside; protarsus i. without any lateral spines; tibiæ iii. and iv. with a dorsal basal spine.

*Hab.* Guatemala (*Sarg*).

### 13. **Sidusa nigrina,** sp. n. (Tab. XVI. figg. 8, 8 *a–c*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

Carapace yellow or orange, with the cephalic area entirely black. Legs wholly yellow. Abdomen dull white, with a large, more or less distinct, black, piriform dorsal patch, narrowing somewhat abruptly to the spinners; lower lateral area streaked and spotted with black; ventral area dull white, with or without one or more broken dusky lines.

Tibia i. with lateral spines on the inside; protarsus i. without any lateral spines; tibiæ iii. and iv. with small dorsal basal spines. Vulval area obtuse triangular, with a pair of black orifices anteriorly, more or less definitely connected with curving sinuous internal ducts (see Plate).

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 14. **Sidusa albida,** sp. n. (Tab. XVI. fig. 9, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

General appearance very much as in *S. vittata*, but the abdomen is dorsally almost entirely dark black-brown, with a small lateral white spot just about the middle, and an elongate oblique white blotch on each side of the apex, nearly meeting above the spinners. Legs as in *S. vittata*, but darker. Ventral area pale and speckled. Vulva consisting of a broad transverse oval area, divided in the middle by a narrow longitudinal septum, forming on each side a large longitudinally situate oval disc, with circular convoluted ducts appearing within each area. Protarsus i. without lateral spines; tibia i. with a lateral spine on the inner side; tibiæ iii. and iv. with a small dorsal basal spine.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

### 15. **Sidusa cristata,** sp. n. (Tab. XVI. figg. 10, 10 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*).

This beautiful species may be at once recognized by the crested fringes of long brown

hair tipped with white on the first pair of legs, and the tufts of hair on the tibia of the palpus. At first sight, it may be taken for a *Habrocestum*, but the form of the tarsus and bulb of the palpus will at once prevent any confusion.

### 16. **Sidusa spirorbis,** sp. n. (Tab. XVI. figg. 11, 11 *a–e*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Panama, Bugaba (*Champion*).

This small species resembles *S. cristata* in the fact that the first pair of legs alone is fringed with hairs, but the disposition and character of the fringes are very different. The differential characters will be found in the Table and on the Plate.

### 17. **Sidusa nigriventer,** sp. n. (Tab. XVI. figg. 12, 12 *a–d*, ♂; 13, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ ♀, 8 millim.; a smaller example, 5 millim.

♂ ♀. Carapace brown, cephalic area black, with a broad pale band behind the posterior eyes and continued to the anterior margins on each side. Legs unicolorous yellow. Abdomen rich brown or black, mottled, with a broad, anterior, pale band continuous in front and running obliquely along the sides: on the posterior half is a large transverse oval area cut out by a pale band, with a pair of pale spots in the centre; the pale band broadens at the spinners, and bears one or more small black central spots. (These pale and dark central longitudinal spots are the remains of the normal chevrons.) Lateral areas pale, speckled with dusky brown; ventral area pale, with a broad black longitudinal central band, beginning at the genital rima, but not quite reaching the spinners.

Tibia i. with lateral spines on the inner side; protarsus i. with lateral spines on both sides; tibiæ iii. and iv. without any dorsal basal spine.

Vulva consisting of a pair of white auriculoid discs confluent on the central line, with a pair of dark oval discs behind.

*Hab.* Panama, Bugaba (*Champion*).

### 18. **Sidusa murcida,** sp. n. (Tab. XVI. figg. 14, 14 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

Carapace brown, cephalic area as far as the central stria clothed with white hairs, and with a posterior marginal white band. Legs yellow, apical half of femora and apex of each other segment annulated with brown. Abdomen brown, with an anterior marginal black band, followed by a white band, not interrupted in the middle, and continued obliquely at least two-thirds along the lateral margin. The dorsal area is somewhat deprived of hairs, but the parenthetical white curved lines on each side in the apical half are present. Tibia i. with lateral spines on the inner side; protarsus i. with lateral spines on both sides; tibiæ iii. and iv. with a small dorsal basal spine.

Vulva consisting of a pair of small circular discs, bounded by a duct, in contact on their inner margin with a black spot, possibly marking an orifice on the outer posterior margin. The discs are situated almost a diameter from the genital rima.

*Hab.* Guatemala (*Sarg*).

### 19. **Sidusa fulvoguttata,** sp. n. (Tab. XVII. figg. 1, 1 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8·5 millim.

Carapace brown, with a posterior marginal white band and other white spots (much obliterated) on the cephalic and thoracic areas. Abdomen brown, with a pair of slender, parallel, white lines on each side on the

anterior margin, followed by a square central orange spot and by a central pale band, more or less broken up into chevrons, to the spinners. In the posterior half are two longitudinal, black, marginal spots, in connection with a pair of circularly curved, parenthetical, white bands, often broken in the middle and forming four separate, short, white bars. Ventral area dusky white. Legs yellow-brown, first pair darker.

Vulva consisting of a pair of circular discs, in contact on their inner margins, each with a spiral internal duct, coiled from right to left, starting at the centre of the right disc (seen from below) and *vice versa* with the other disc. Protarsi i. and ii. with lateral spines on both sides; tibia i. with lateral spine on the inner side; tibiæ iii. and iv. with small dorsal basal spines.

*Hab.* MEXICO, Atoyac in Vera Cruz (*H. H. Smith*); GUATEMALA (*Sarg*), Guatemala city (*Stoll*).

The pattern on the abdomen is very similar to that of *S. flavida*, *S. albicincta*, and *S. voluta*, with the exception of the central orange patch. This species is probably identical with *Jotus* (*Dynamius*) *opimus*, Peckh., though whether also agreeing with Banks's identification of the same species it is impossible to say.

### 20. **Sidusa albicincta,** sp. n. (Tab. XVII. figg. 2, 2 *a–d*, ♂; 3, 3 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 6 millim.

♂ ♀. Carapace brown, with a pale spot of hairs between the lateral eyes, two pale spots on each side of the central stria, and a posterior marginal band of white scales. Abdomen brown, with a black anterior marginal band, followed by a thin encircling white line extending obliquely a little down the sides; a pair of oblique white spots lie above the spinners and are connected with a circular transverse narrow white cincture just behind the middle. Ventral area pale or suffused with dusky brown. Legs yellow, more or less suffused with brown.

Tibia and protarsus i. with lateral spines on each side; tibiæ iii. and iv. with a small dorsal basal spine.

Vulva consisting of a pair of oval-circular discs in contact on their inner margins, touching the genital rima, with a pair of posterior spermathecal spots, each connected with a dark angularly curved duct appearing in the centre of each disc; and a pair of larger, somewhat circular, dark spots appear just beneath the anterior margin. The palpus of the male is very similar to others of the group, very like that of *S. flavida*, but the tibial spur is very long and slender, and the apex of the bulbal spine more or less clavate.

*Hab.* GUATEMALA (*Sarg*); PANAMA, Bugaba (*Champion*).

### 21. **Sidusa parvula.** (Tab. XVII. figg. 4, ♂; 5, ♀.)

***Escambia parvula,*** Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 44, t. 3. figg. 4, 4 *b* (♂), 4 *a*, 4 *c* (♀) (April 1896) [1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 5, ♀ 6 millim.

*Hab.* GUATEMALA, Eastern district [1].

It is curious that this species should not occur in our collection, but no example with the palpal spine as depicted on the Plate has yet come before me. In the female of *S. albicincta* the vulva very much resembles that of *S. parvula* (Emerton's figure), but there are decided differences. Our figures are taken from Peckham's work.

### 22. **Sidusa conspecta.** (Tab. XVII. figg. 6, 6 *a–c*, ♂; 7, 7 *a–g*, ♀.)

*Escambia conspecta*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 42, t. 3. figg. 3, 3 *d* (♂), 3 *a*, *b*, *c*, *e* (♀) (April 1896) [1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 7, ♀ 9 millim.

*Hab.* Mexico, Teapa, Orizaba (*H. H. Smith*); Guatemala, Eastern district [1] (*Sarg*); Costa Rica (*Rogers*).

Of this species we have numerous males and females in our collection. There can be no doubt, owing to the excellent figures of Emerton, that they belong to *S. conspecta* (Peckh.).

### 23. **Sidusa alacris.** (Tab. XVII. figg. 8, 8 *a*, ♀.)

*Escambia alacris*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 46, t. 3. figg. 5, 5 *a* (♀) (April 1896) [1].

Type, ♀, in coll. Peckham. Total length 7 millim.

Carapace brown (but the pubescence is more or less obliterated in our specimen), with a white spot in front of the lateral posterior eyes and a posterior white marginal band. Abdomen very distinctly marked with a large, pale orange, oblique shoulder-spot, followed by a central pale band, resolving itself into a series of pale chevrons, to the spinners, with a pair of white spots nearer together about midway, and four white spots further apart, in the apical half; lateral area brown; ventral area pale, suffused with sooty brown. Legs brown, mottled with spots of white hairs.

Small eyes midway between the laterals; tibia and protarsus i. with lateral spines on both sides; tibiæ iii. and iv. with a small dorsal basal spine. Vulva consisting of a pair of large, slightly longitudinal, oval discs, in contact along their inner margins, about a quarter of their diameter from the genital rima, with a dark spot near the centre connected with a circular internal duct.

*Hab.* Guatemala, Eastern district [1] (*Sarg*).

### 24. **Sidusa circumcincta,** sp. n. (Tab. XVII. fig. 9, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

Carapace black-brown; cephalic area margined with a slight band of scattered white hairs and a posterior marginal band of the same. Abdomen brown, with two slender transverse lines of white hairs across the anterior dorsal area, followed by a straight transverse white line (or narrow band) just behind the middle, and a short oblique white band just above the spinners on each side. Legs brown (tarsi paler), mottled with white hairs.

Tibia i. with lateral spines on the inner side; protarsus i. with lateral spines on both sides; tibiæ iii. and iv. with a small dorsal basal spine. Vulva consisting of a transverse-oval area, about its own diameter from the genital rima, with a pair of circular discs, terminating behind in a somewhat pear-shaped form, curving outwards, in contact on their inner margins, being the two normal posterior spermathecal spots, the anterior discs having a dark central spot connected with a spiraloid internal duct.

*Hab.* Mexico, Teapa (*H. H. Smith*).

### 25. **Sidusa quadriguttata,** sp. n. (Tab. XVII. figg. 10, 10 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

Carapace brown, clothed with white hairs, with a pale posterior central and a broad pale marginal band. Abdomen brown and dull white, mottled, with a central pale band, resolved into five or six pale chevrons, to the spinners, and four white spots set in brown patches, the first pair smaller, the second pair larger

and transverse. Ventral area pale, speckled. Legs orange-yellow, with slightly indicated dusky annulations.

Tibia i. with lateral spines on the inner side; protarsus i. with lateral spines on both sides; tibiæ iii. and iv. with a single dorsal basal spine. Patellæ i. and ii. with one inner spine, iii. and iv. with a spine on each side. Sternum one-half longer than broad, broader in front. Vulva consisting of two large circular-oval adjacent areas, fused on their inner margins, about one-fourth a diameter from the posterior margin, their outer margins curving inwards and becoming enlarged about the centre of each area.

*Hab.* MEXICO, Teapa (*H. H. Smith*); GUATEMALA (*Sarg*); PANAMA, Bugaba (*Champion*).

### 26. **Sidusa brevispina,** sp. n. (Tab. XVII. figg. 11, 11 *a–c*, ♂; 12, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 6 millim.

Coloration similar in both sexes, but lighter in the female.

♂. Legs i. and ii. fringed above and below on the femur, patella, tibia, and protarsus with black hairs. Carapace brown or black, more or less mottled with white hairs, a ring round the posterior eyes and a posterior marginal band being more conspicuous. (The carapace in the male is much rubbed and almost entirely devoid of hairs.) Legs i. and ii. black or brown, iii. and iv. paler yellow-brown. Abdomen rich black-brown, with an anterior dorsal curved hieroglyphic white band on each side, not connected in front, followed to the spinners by a broad central pale band relieved by a series of five or six brown chevrons; lateral area pale in the second half, but streaked with black anteriorly; ventral area pale, with a central elongate **U**-shaped brown spot, encircled by a pale band with two central broken pale bands within its area, the pale outer encircling band being flanked with a black-streaked border, these markings varying very considerably in different examples. Tibia i. with lateral spines on the inside, iii. and iv. with a small dorsal basal spine; protarsus i. with lateral spines on each side. Small eyes much nearer the posterior laterals. Tibial spur of palpus long and slender, apical spine of bulb quite short, only slightly curved.

Vulva consisting of a broad transverse oval area, with a large dark reniform spermathecal disc on each side on the lateral margin, and a pair of obliquely transverse oval dark discs posteriorly, with a pair of dark spots in the central portion of the area.

*Hab.* GUATEMALA (*Sarg*).

### 27. **Sidusa lutea,** sp. n. (Tab. XVII. fig. 13, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* MEXICO, Teapa (*H. H. Smith*).

This little species can be distinguished from *S. albicincta* by the dull orange scales on the clypeus and round the central anterior eyes. Other characters are given in the Table. The little fork at the end of the tibial spur is characteristic, though sometimes one of the prongs is broken off.

Had Peckham made any mention of orange scales on the clypeus one would have suspected that this species was his *S. parvula*, for in the figure the tibial spur is very clearly bifurcate.

### 28. **Sidusa spiralis,** sp. n. (Tab. XVII. figg. 14, 14 *a–e*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim., varying in other examples to 10 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*); Guatemala (*Sarg*); Panama, Bugaba (*Champion*).

The smaller examples are very similar in general appearance to *S. parvula*, but the species may be recognized at once from all forms known to me by the cresting fringes on the *third* pair of legs and also by the more widely curving, more spiraloid form of the apical palpal spine.

### 29. **Sidusa voluta,** sp. n. (Tab. XVII. figg. 15, 15 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

Carapace brown, margined with white scales, with a white spot between the lateral eyes and two or more spots in the region of the central stria. Cephalic area and eyes margined with black. Abdomen golden-buff, with a broad, black, anterior marginal band followed by a sinuous white line on each side, not united in the middle. On the posterior dorsal area are a pair of black spots on each side in connection with a circular parenthetical white bar on each side, often resolved into two spots (as in some varieties of *S. albicincta*). Ventral area pale, with olive-green speckles. Legs yellow, more or less distinctly annulated with brown. Tibia i. with lateral spines on the inner side; protarsus i. with lateral spines on both sides; tibiæ iii. and iv. with a small dorsal basal spine. Vulva consisting of two circularly margined areas in contact along their inner margins, with four dark spermathecal spots in a transverse line about one diameter (variable) from the genital rima, the central pair circular and slightly larger, the lateral pair smaller and piriform, connected by a second curved internal duct; the first constitutes the margins of the disc on each side.

*Hab.* Panama, Bugaba (*Champion*).

The pattern on the abdomen of this small species is very similar to that of others of the group, especially *S. albicincta* and *S. flavida*, but the disposition of the ovaries and oviducts is very distinct.

### 30. **Sidusa sulphurea,** sp. n. (Tab. XVII. figg. 16, 16 *a*, ♂; 17, 17 *a*, *b*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3, ♀ 4 millim.

Carapace dark brown, clothed with pink iridescent scales, with a broad posterior marginal blotch of sulphur-yellow scales. Abdomen brown or black, with a pair of conspicuous sulphur-yellow shoulder-spots; a pair of curved transverse yellow bars (sometimes separate in the centre, sometimes united and forming a single transverse bar) just behind the middle, followed by two or three small central spots, a larger yellow spot just above the spinners, and one on each side of this; sides spotted with dusky brown; ventral area pale. Legs brown or yellow-brown; i. and ii. rather darker.

Cephalic area more globular than in most of the allied species. Small eyes midway between the laterals. Tibia i. and protarsus i. without lateral spines on either side; tibiæ iii. and iv. without a dorsal basal spine. Tibial spur of male palpus a little longer than the segment, sparsely truncate at the apex (but this is probably the result of accident, and in reality it is more or less aculeate). Bulb not developed basally, with a fine circularly curved spine at the apex, its point slightly recurved.

Vulva characteristic, consisting of a pair of circular brown discs, in some cases in contact, in others slightly separate, situated on the posterior margin, with a pair of circularly-spiral ducts in front, forming two discs about the same size as the posterior pair, or slightly larger.

*Hab.* Panama, Bugaba (*Champion*).

31. **Sidusa flavida,** sp. n. (Tab. XVIII. figg. 1, 1 *a*, ♂; 2, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 6 millim.

*Hab.* Guatemala (*Sarg*).

This little species can be recognized by the conspicuous band of yellow hairs on the anterior margin of the abdomen in both sexes. Other characters are given in the Table of species. *Jotus opimus*, Peckh., is closely allied to this species and also to *S. sulphurea*.

32. **Sidusa binotata,** sp. n. (Tab. XVIII. fig. 3, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* Mexico, Atoyac in Vera Cruz (*H. H. Smith*).

In size and general appearance this spider is very like *S. conspecta* (Peckh.), but the tibial spur is longer and more slender, and there are no brown and white crested fringes above and beneath patellæ, tibiæ, and protarsi i. and ii., but only a more dense clothing of black hairs; tibiæ i. and ii. are, moreover, cylindrical and not quadrate, seen in transverse section, as in *S. conspecta*. Otherwise the coloration is very similar indeed. The distinctive characters are given in the Table.

33. **Sidusa excavata,** sp. n. (Tab. XVIII. figg. 4, 4 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 8 millim.

Legs unicolorous brown. Carapace and legs clothed with azure-blue scales, the former also with a spot of white scales between and beneath the lateral eyes, and another on each side behind the posterior lateral eyes, but approaching the central line. Apex of femur and tibia of palpus yellow, clothed with white scales. Clypeus not clothed with white hairs.

*Hab.* Guatemala (*Sarg*).

This species may be recognized by the excavate mandibles (the excavation not confined to the middle) and the absence of a tooth on their margin, the absence of fringing hairs on the legs, the abrupt constriction on the inner basal margin of the palpal bulb, and the less sweeping curve of the apical spine.

34. **Sidusa opima.** (Tab. XVIII. figg. 5, ♂; 6, ♀.)

*Jotus opimus*, Peckh. Proc. Nat. Hist. Soc. Wisc. 1885, p. 71, t. 2. figg. 7, 7 *b* (♀), 7 *a* (♂) (Dec.)[1].
*Dynamius opimus*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 12 (♀) (April 1896)[2];
Banks, Proc. Calif. Acad. Sci. (3) i. p. 283, t. 17. fig. 25 (♀) (1898)[3].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 8, ♀ 10·7 millim.

*Hab.* Mexico, Tepic[3]; Guatemala[1 2].

This species is evidently closely allied to others of the "*Escambia*" group of *Sidusa*. probably the same as *S. fulvoguttata*.

## PENSACOLA.

*Pensacola*, Peckham, Proc. Nat. Hist. Soc. Wisc. 1885, p. 83 (Dec.).
*Hamillus*, Peckham, Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 70 (April 1896).
Type of *Pensacola*, *P. signata*, Peckh., Guatemala; of *Hamillus*, *H. sylvestris*, Peckh., Guatemala.

Characters drawn from the adult male of the type-species of *Hamillus*:—Cephalic quadrangle much broader than long, slightly wider in front. Dorsal eyes nearer the lateral posteriors. Anterior row of eyes straight by their posterior margins or slightly procurved; central anteriors less than twice the diameter of the laterals. Clypeus very narrow, less than one-fourth the diameter of the anterior centrals. Sternum nearly three times longer than broad; coxæ of legs subequal. Legs 3, 1, 2, 4, or 3, 1, 4, 2. Leg i. the stoutest, with the patella and tibia fringed below with longer hairs. Patellæ i. and ii. with one inner spine, iii. and iv. with 1—1 spines. Tibiæ i. and ii. with 1—1—1 lateral spines on each side, and 1—1 extra lateral inner spines. Protarsi i. and ii. with 1—2 spines on the outer side, 2—2 on the inner side; iii. and iv. with a subbasal and an apical ring of spines. Tibiæ iii. and iv. with, besides lateral spines, a single small central dorsal basal spine. Maxillæ very much enlarged and dilate laterally at their apex. Mandibles greatly enlarged, variable individually. Both fang-grooves situated on a semi-detached bracket-like piece of the basal segment, variously shaped; upper margin numerously toothed and with a single larger tooth at its inner, or posterior, angle; lower margin with a single large tooth at its inner, or posterior, angle. The basal segment has a long, sharp, curved spur, starting from the inner margin in front towards the base, directed downwards and forwards; there is also often a more or less developed cusp on the outer margin about the middle of the basal segment. Palpi long and slender; femur strongly curved; tarsus narrow, bulb narrow and elongate, with a slender apical, slightly spiraloid, spine; tibial spur slender.

### 1. **Pensacola signata.** (Tab. XVIII. figg. 7, 7 *a–f*, ♂.)

*Pensacola signata*, Peckh. Proc. Nat. Hist. Soc. Wisc. 1885, p. 84, t. 2. figg. 13, 13 *a–e* (♂ ♀) (Dec.)[1].

Type, ♂, in coll. Peckham. Total length 6 millim.

*Hab.* GUATEMALA[1].

I strongly suspect that this species is identical with *Hamillus sylvestris*, Peckh., but without the type-specimens at hand for examination one cannot be certain.

### 2. **Pensacola sylvestris.** (Tab. XVIII. figg. 8, 8 *a–c*, ♂.)

*Hamillus sylvestris*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 71, t. 6. figg. 3, 3 *a–c* (♂) (April 1896)[1].

Type, ♂, in coll. Peckham. Total length 5 millim.

Tibia and patella i. fringed with red or brown hairs beneath. Palpus clothed with white hairs; the tibia white and in one example with a black line down its whole dorsal length. There may be two species characterized by this difference in the tibia of the palpus and the red or brown hairs beneath tibia i.; but I can see no difference in the palpal organs, and have not material sufficient at hand to decide the question.

*Hab.* MEXICO, Teapa (*H. H. Smith*); GUATEMALA, Eastern district[1].

### 3. **Pensacola radians.** (Tab. XVIII. fig. 9, ♀.)

*Hamillus radians*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 72, t. 6. figg. 4, 4 *a* (♀) (April 1896)[1].

Type, ♀, in coll. Peckham. Total length 6·2 millim.

*Hab.* Panama [1].

I have not come across any examples of this spider in our collection.

## PARDESSUS.

*Pardessus*, Peckham, Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 35 (April 1896).

Type *Pardessus mimicus* (C. Koch). Brazil.

The type-species (sec. Peckham), of which there is only a female in our collection, appears to me to be very close to *Cyrene*, but not having the males also it is difficult to settle the point. I therefore leave the genus as it is, but am unable to give any characters by which it can be satisfactorily separated from the above.

I. Patellæ i. and ii. without spines. Abdomen orange or orange-red, with two large adjacent black spots in front and two broad transverse black bars behind, the first often dilate in the middle, the second apical. Abdomen with a dark anterior marginal band. Ventral area brown, with a pale cincture, formed by the continuance beneath of the first dorsal pale band. Carapace clothed with rust-red or yellow-red hairs; cephalic area darker. Legs brown; patellæ, tibiæ, and protarsi orange. *mimicus*, Koch.

II. Patellæ i. and ii. with spines on the inner side. Abdomen brown, with orange speckles, having a broad lateral-anterior marginal orange band scarcely meeting in front, posteriorly deflected about the middle of the lateral area; and a broad, transversely procurving, orange band, whose ends are bent below and recurved towards the spinners. Ventral area pale brown. Carapace black, with red hairs and a marginal band of white hairs. Legs brown; patellæ rather paler; protarsi of all four pairs clothed above with white scales; femora and other segments also with white scales . . . . . *gratiosus*, Koch.

### 1. **Pardessus mimicus.** (Tab. XVIII. figg. 10, 10 *a*, ♀.)

*Plexippus mimicus*, C. L. Koch, Die Arachn. xiii. p. 111, fig. 1173 (♀) [1].

*Pardessus mimicus*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 36, t. 3. figg. 1, 1 *a*, *b* (♀) (April 1896) [2].

Type, ♀, in coll. Peckham. Total length 9–10 millim.

*Hab.* Panama [2].—Brazil [1], Chapada [1].

### 2. **Pardessus gratiosus.** (Tab. XVIII. figg. 11, 11 *a*, ♀.)

*Phiale gratiosus*, C. L. Koch, Die Arachn. xiii. p. 193, figg. 1240, 1241 (♀) [1].

*Pardessus gratiosus*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 36 (April 1896) [2].

*Hab.* Panama, Bugaba (*Champion*).—Brazil [1].

The specimen shown on our Plate has been identified by Peckham as *Pardessus*

*gratiosus*, and it may be referable to Koch's species, judging from the two published figures.

## CYRENE.

*Cyrene*, Peckham, P. Z. S. 1893, p. 698.
*Heraclea*, Peckham, Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 76 (April 1896).

Type of *Cyrene*, *C. decorata*, Peckham (*in Mus. Brit.*), St. Vincent, W.I. (♀); of *Heraclea*, *H. regia*, Peckham, Guatemala.

I am unable at present to recognize any generic distinction based on the structure which would incline one to uphold the use of these two distinctive names. I am also unable to understand on what system Peckham's classification is based, or whether there is any system intended. He, however, remarks that *Heraclea* is near *Epinga*, but does not mention that *Cyrene* even enters the same group. *Epinga*, in my opinion, is not very nearly allied to either of them. It is of course possible that *C. niveoguttata*, *C. delecta*, *C. aprica*, and *C. interrupta* may, with the type-species, whose abdominal pattern is characteristic, form a convenient generic group, if some really definite character be found on which to base such a distinction.

The following are the characters common to all the members included here under *Cyrene*:—

♀. Anterior row of eyes slightly recurved; ocular quadrangle broader than long, wider in front. Carapace elongate-oval, slightly dilate at the sides beyond the middle, about once and a quarter longer than the ocular quadrangle, but very variable. Tibiæ i. and ii. with 2—2—2 spines beneath and one apical spine, or 1—1 lateral spines on the inner side; protarsi i. and ii. with 2—2 spines beneath. Patellæ i. and ii. with or without a small spine on the inner side. Tibiæ iii. and iv. with or without a single small dorsal basal spine *; with 1—1—1 spines on each side. Protarsi iii. and iv. with a basal, median, and apical transverse group of spines. Sternum very variable in shape, but, as a rule, rather dilate posteriorly, where it narrows suddenly and concavely, forming a very broad blunt cone. Mandibles simple, not developed, nor with enlarged teeth or apophyses; with a short stout fang, two small teeth on the upper margin, and a single slightly larger one on the lower.

The characters drawn from minute differences in the position of the eyes and in the height and curvature of the carapace are so subtle, and so difficult of observation, as to be almost useless, to my mind.

### *Males.*

A. Abdomen bright orange-rust-red above, with central pale band.
  i. Tibiæ iii. and iv. without a small dorsal basal spine.
    1. Tibia of palpus incrassate, bilobate, prominent on the outer side, viewed from above. Bulb not bilobate at the base; apical spine short, slightly curved, with a small inner marginal prominence . *regia*, Peckh.

* This character separates the females into two groups—(1) including *C. delecta*, *C. aprica*, *C. interrupta*, *C. fusca*, and *C. bisignata*, which possess the spine; and (2) the remaining species, in which it is absent. Amongst several males of the latter, however, which are obviously congeneric with the females of that group, the spine is present.

2. Tibia of palpus not incrassate, or bilobate, or prominent on the outer side, but with a long slender black spur deeply cleft at the apex. Bulb deeply bilobate at the base; apical spine long, slender, filiform, curved . . . . . *pratensis*, Peckh.

ii. Tibiæ iii. and iv. with a small dorsal basal spine.

1. Apical spur of bulb short, stout; bulb almost bisymmetrically bilobate at the base . . . . . *niveoguttata*, sp. n.

2. Apical spur of bulb long and slender; bulb bilobate, but outer lobe much more developed.

*a'*. Legs i. and ii. brown, tarsi yellow; iii. and iv. spotted and annulate brown and yellow, protarsi yellow, except at the apex, tarsi yellow. Ground-colour of carapace and abdomen brown. Tibial spur of the palpus slightly though decidedly hooked at the apex; seen in profile the base of the bulb lies almost straight along beneath the tibial spur, not upcurved. Abdomen usually with distinct white central posterior herring-bone band, but this is sometimes absent. (Carapace brown, broadly margined with white, the band running up between the lateral eyes, with a central anterior cephalic white spot and a posterior spot, often isolated, usually coalescing with and followed by a pale central band running to the posterior margin. Clypeus white. Abdomen brown, more or less clothed with orange hairs, with two white shoulder-spots, often united to form a transverse band; with a central transverse pale band, sometimes resolved into three spots, followed by a pale herring-bone band, with two larger white spots on each side and two smaller ones close to the spinners; posterior margin white.) . . . . . *delecta*, Peckh.

*b'*. Legs i., ii., iii., iv. black, tarsi yellow. Ground-colour of carapace and abdomen black. Tibial spur of the palpus not hooked at the apex; seen in profile the base of the bulb curves upward. Abdomen without white herring-bone posterior band, but with four thin white ⩘-shaped lines. (Carapace black, margined and spotted as in *C. delecta*, but less distinctly. Clypeus white. Abdomen black, with white anterior and central transverse bands; in the absence of the herring-bone band the four white spots remain conspicuous.) . . . . . *aprica*, Peckh.*

B. Abdomen not orange-rust-red above, but brown or grey, with or without central and marginal pale bands.

i. Legs red-brown or dull yellow-brown; iii. and iv. sometimes annulate, but, like i. and ii., not conspicuously spotted with black. Femora i. and ii. not clothed with bright orange scales in front.

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* The palpi of *C. delecta* and *C. aprica* are very similar in form, and the coloration is extremely variable, at least in the former. I believe, however, that *C. aprica* is a good species. The size, too, is of no importance, as we have males of *C. delecta* varying from 3·5–6 millim.

* Apical spine of the palpus not bifurcate or bifid, simple, aculeate.

1. Tibiæ iii., or iii. and iv., with a single small dorsal basal spine (besides the usual laterals).

1*a*. Tibiæ iii. and iv. with dorsal basal spines. Tibial spur of palpus unibranchiate.

*a'*. Tibial spur of the palpus very long, slightly curved, directed downward and forward, notched beneath at the apex. (Carapace as in *C. regia*, with a white patch behind the anterior eye. Bulb not bilobate at the base.) . . . . *longispina*, sp. n.

*b'*. Tibial spur of the palpus very short, short and broad, or quite inconspicuous, merely tuberculiform.

*aa'*. Tibial spur of the palpus very inconspicuous, tuberculiform, bent downward and inward at the base of the tarsus. Bulb not bilobate. Apical spine gently but decidedly curved. (No white patch behind anterior eyes.) *curvispina*, sp. n.

*bb'*. Tibial spur of the palpus very short, but sharp and sinuous. Apical spine very long and sinuously straight. Bulb very much enlarged and bilobate . . . . . *bulbosa*, sp. n.

1*b*. Tibia iii. only with dorsal basal spines. Tibial spur of palpus bibranchiate. (Apical spine modified to form a large flat curving plate. Bulb not bilobate.) . . . . . *bicuspidata*, sp. n.

2. Tibiæ iii. and iv. without any dorsal basal spines.

*a'*. Palpal bulb deeply bilobate at the base (but not enlarged). Apical spine very short and not very stout. (Tibial spur short and curved.) . . . . . *bilobata*, sp. n.

*b'*. Palpal bulb simple, not bilobate, but distinctly attenuate at the base. Apical spine very long, either straight or very strongly curved.

*aa'*. Tibial spur of the palpus short, broad, quadrate, bent inward, the angles not produced. Bulb suddenly attenuate at the base. Apical spine straight, or only very slightly curved from the base . . . . . *grisea*, sp. n.

*bb'*. Tibial spur of the palpus short, broad, but its angles produced, the inner or upper one much more than the outer or lower. Bulb gradually attenuate basally. Apical spine very strongly curved from the base, its apex being also itself strongly incurved . . . . . *prominens*, sp. n.

** Apical spine of the palpus broad, more or less bifid or bifurcate, divided into a pair of longer or shorter branches.

*a*. Tibiæ iii. and iv. with a single small dorsal basal spine.

*a'*. Tibial spur of the palpus short and blunt. Apical spine less deeply bifid: inner branch short, broad, straight, concave; outer branch short, curved, and transparent, very inconspicuous . . . . . *bifida*, sp. n.

*b'*. Tibial spur of the palpus long, straight, stout, slightly curving downwards, notched beneath at the apex. Apical spine deeply bifid, the two branches being very slender and subsimilar, the upper one slightly sinuous . . . . . *bifurcata*, sp. n.

*b*. Tibiæ iii. and iv. without any small dorsal basal spines.

*aa*. Palpal bulb simple at the base, rounded, globular. Tibial spur broad, short, its outer angle sharp. Apical spine deeply and broadly bifurcate, the upper branch longest and strongly curved, the lower short and not very conspicuous . . . . . *rustica*, Peckh.

*bb*. Palpal bulb rather suddenly attenuate at the base. Tibial spur short, very broad, with a sharp angle in the middle. Apical spine very broad, slightly dilate and bifid at apex . *minuta*, sp. n.

ii. Legs yellow, conspicuously spotted with black. Tibiæ i. and ii. jet-black beneath. Femora i. and ii. clothed in front with bright orange scales. (Cephalic area orange-red, without a white spot between and behind the anterior central eyes; otherwise as in *C. regia*. Abdomen olive-brown, with central and marginal grey bands. Tibial spur of the palpus short, broad, truncate at the apex, the inner angle of the oblique truncation bent down inwards at the base of the tarsus. Tibiæ iii. and iv. with a small central basal dorsal spine.) . . . . . *maculatipes*, sp. n.

NOTE.—I do not know the male of *C. sanguinea* (Peckh.) nor of *C. dybowskii* (Tacz.), and cannot therefore include them in the Table. The figure given of the palpus of the latter by Peckham is not sufficiently detailed for the purpose.

## *Females.*

A. Tibiæ iii. and iv. without any small dorsal basal spines.

AA. Carapace, abdomen, and legs orange-yellow, the former with pale bands or black bands and markings.

1. Carapace with a pale central and pale marginal bands; abdomen with a pale central band. Vulva transverse circular oval, posterior margin deeply indented in the middle, with a pair of widely separate transverse orifices . . . . . *flavescens*, sp. n.

2. Carapace with a dark brown central and marginal pale bands; abdomen with two pairs of black blotches, the anterior pair confluent in front, the posterior pair behind. Vulva slightly emarginate behind, not indented, with a small tubercle in the centre of the posterior margin, and a pair of widely separate long sinuous lines, anteriorly marking the position of the orifices . . *hieroglyphica*, sp. n.

BB. Carapace, abdomen, and legs brown, black, or red, mottled.

i. Abdomen clothed with orange-rust-red or golden hairs on the dorsal surface, besides pale spots, with a pale central or pale transverse bars.

*aa.* Patellæ i. and ii. without short spines either on the inner or the outer side.

*a'*. Legs unicolorous red-brown. (Abdomen rust-red above, with an anterior marginal white band, dilate behind and directed upward; followed by an elongate transverse white spot; with two central longitudinal dorsal white spots, margined with black; posterior spinners black; sides of abdomen black, ventral area pale, or white. Legs and palpi entirely brown, except the coxæ, trochanters, and patellæ.) . . . *dybowskii*, Tacz.

*b'*. Legs more or less annulated with yellow and brown.

* Carapace with a central posterior band of white hairs. Femora i. and ii. not dark at the base. Vulva short, broad, semicircular or rounded, quadrate, emarginate in the middle of the posterior margin, each side sloping upward to form a central ridge, with dark central blotches under the epidermis, and a dark orifice at each anterior angle . . . *emarginata*, sp. n.

** Carapace without a band of white hairs, but with a pale yellow central posterior band; a few obliquely curved lateral bars of white hairs only present. Femora i. and ii. dark at the base. Vulva very long, usually sinuously prominent on the posterior margin, with a central ridge or carina, and an anterior marginal convexity with a dark orifice on each side . . . . . *regia*, Peckh.

*bb.* Patellæ i. and ii. with a short spine on the inner side.

1. Abdomen rust-red, with a central black longitudinal band; on it lies a central white arrow-head, followed by a transverse oval white spot, centred with red, behind which to the spinners is a band of rust-red, with two or three small white spots on each side; sides white, speckled with brown; ventral area white. Legs entirely yellow . . . . . *pratensis*, Peckh.
2. Abdomen clothed with golden hairs, with a white anterior marginal band, a transverse white band at the middle, followed by two indistinct pale curved transverse bars and three snowy-white spots in a transverse row . . . . . *niveoguttata.*
3. Abdomen yellow, with a pale central band . . . . . *flava*, sp. n.

ii. Abdomen not clothed with orange-rust-red hairs on the dorsal surface, simply grey or mottled brown, usually without any pale anterior band, but with a pair of more or less distinct pale spots on each side in the apical half, and a more or less well-defined pale central dorsal scalloped band.

* Carapace with a marginal or submarginal band of white hairs.

*a.* Vulva without any large concavity on either the anterior or posterior margin.

1. Posterior margin of vulva with a conspicuous rounded prominence in the middle.
   *a'*. Vulva with, anteriorly, a pair of deep semicircular channels connected behind, widely divergent in front . *prominens*, sp. n.
   *b'*. Vulva with, anteriorly, a pair of oval cavities, one diameter apart, situated transversely and obliquely, followed by a pair of brown spermathecal spots longitudinally situate . . . . . *infuscata*, sp. n.
2. Posterior margin of vulva without any rounded prominence in the middle.
   *aa*. Vulva with, anteriorly, a pair of short, procurving, divergent, widely separate, semilunar, chitinous edges. Behind lie a pair of large oval spots, with a narrow piece on the inner side of each, beneath the epidermis; posterior margin with a broad, chitinous, transverse piece . . . . . *pallida*, sp. n.
   *bb*. Vulva with, anteriorly, a pair of long, slightly sinuous, chitinous edges, obliquely convergent forward. Behind lie a pair of small circular spots and the posterior margin is simple, not broadly chitinized . . . . . *bicuspidata*, sp. n.

*b*. Vulva with a large concavity on either the anterior or posterior portion of the epigynal area or in the middle.
   *aaa*. Vulval cavity situated in the middle of the epigynal area.
      † Cavity horseshoe-form, with anteriorly a pair of deep oval cavities, and posteriorly a pair of more or less adjacent oval spermathecal spots . . . . . *mediocava*, sp. n.
      †† Cavity circular-piriform, with no anterior pair of cavities, and posteriorly a pair of subadjacent circular-reniform spots . . . . . *elegans*, sp. n.
   *bbb*. Vulval cavity situated on either the anterior or posterior portion.
      *a'*. Vulva with a broad transverse-oval cavity, posteriorly notched in the middle, with a rounded prominence in the middle of the anterior side of the cavity . . . . *laticava*, sp. n.
      *b'*. Vulva with a broad transverse-oval cavity, sinuous on the posterior margin, but not so deeply notched, without any rounded prominence anteriorly . . . . . *simplicicava*, sp. n.

** Carapace without a marginal or submarginal band of white hairs.

*a*. Legs i. and ii. not, and iii. and iv. very indistinctly, annulate. Abdomen with a well-defined dark black-brown dorsal band, bordered on the outside with a slightly broken pale marginal band, and embracing a white central dorsal bar scalloped anteriorly and somewhat chevroned towards the spinners. Vulva with, anteriorly, a large transverse-oval cavity, behind

this a pair of blue-black sinuous spots, with a small concavity lying between them; posterior margin concave in the centre, without any prominence . . . . . *albosignata*, sp. n.

*b*. Legs i., ii., iii., and iv. annulate. Abdomen without any well-defined dark dorsal band; marginal pale band represented by a pair of pale spots only. Central dorsal pale band scalloped throughout, broader behind and not chevroned. Vulva with, anteriorly, a pair of large reniform cavities, convergent in front; posterior margin sinuous, with a conspicuous rounded conical prominence in the middle . . . . . *bicavata*, sp. n.

B. Tibiæ iii. and iv. with a small dorsal basal spine.

*a*. Abdomen either brown with a central dorsal pale band, or yellow with a central dark band, or often the whole dorsal area dark brown; no transverse pale bands.

1. Abdomen brown, with a central dorsal pale band. Legs not annulate; no marginal band of white hairs on the carapace. Vulva very simple, transverse-oval, posterior margin emarginate in the middle, with a pair of small oval-oblique cavities, anteriorly convergent, in the middle . . . . . *fusca*, sp. n.
2. Abdomen yellow, with a central dark band, or the whole dorsal area dark. Legs annulate; a marginal band of white hairs and a pair of elongate pale spots on the carapace. Vulva more complex, consisting of a pair of circular dark spots, in contact on their inner margins, connected anteriorly with a circularly curved duct, geniculate where it joins the dark spot; posterior margin not emarginate . . . . . *bisignata*, sp. n.

*b*. Abdomen with two transverse pale bands or cinctures, one on the anterior margin, the second just before the middle.

*aa*. Anterior band broken in the middle, followed by an elongate, central, longitudinal pale spot . . . . . *interrupta*, sp. n.

*bb*. Anterior band not broken in the middle nor followed by a longitudinal central pale spot.

1. Second transverse anterior abdominal band (between the two pale bands) very dark, with black and red hairs mixed. Posterior margin of vulva not concavely emarginate, but prominent in the middle and sinuous . . . . . *aprica*, Peckh.
2. Second transverse abdominal band orange-rust-red. Posterior margin of vulva concavely emarginate, with a pair of oval orifices, about their own diameter apart and the same distance from the posterior margin . . . . . *delecta*, Peckh.

Note.—*C. geminata* has not been included in this Table, because the colours have faded in the single specimen seen; but the form of the vulva is very distinct. *C. rustica* and *C. flavescens* are not known to me in nature.

*Females.*

Separable by the spinulation of the legs.

A. No basal dorsal spines on tibiæ iii. and iv.

*a*. Tibia i. with a single apical lateral spine on the inner side. (No spines on the inner side of patellæ i. and ii.) . . . . . *regia, emarginata, prominens, bicuspidata, pallida, bicavata, elegans, albosignata, dybowskii, flavescens.*

*b*. Tibia i. with 1—1 lateral spines, apical and basal.

1. No spine on patellæ i. and ii. on the inner side . . . . . *mediocava.*
2. A spine on patellæ i. and ii. on the inner side . . . . . *laticava, pratensis, infuscata, niveoguttata, flava, hieroglyphica, simplicicava.*

B. A basal dorsal spine on tibiæ iii. and iv.

*a*. Tibiæ i. and ii. with 1—1 lateral spines on the inner side. No spines on patellæ i. and ii. on the inner side. Protarsus ii. without lateral spines on the inner side . . . . . *fusca, delecta, aprica, interrupta.*

*b*. Tibiæ i. and ii. with 1 apical lateral spine on the inner side. Spines on patellæ i. and ii. on the inner side. Protarsus ii. with 1—1 lateral spines on the inner side . . . . . *bisignata.*

Note.—The female of *C. rustica*, which is unknown to me, is not included in this Table.

## 1. **Cyrene regia.** (Tab. XVIII. figg. 12, 12 *a–g*, ♂ ; 13, 13 *a–d*, ♀ .)

*Heraclea regia*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 77, t. 3. figg. 6, 6 *a–c* (♀), t. 4. figg. 1, 1 *a*, *b* (♂) (April 1896) [1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 10, ♀ 13 millim.

Dried example, ♂. Carapace black, entirely margined, except behind, with a broad white band. Cephalic area clothed in the centre with golden-grey hairs, with a triangular rounded patch of white hairs behind and between the anterior central eyes. Thoracic area with a broad, elongate, diamond-shaped patch down the centre, finely attenuate towards the posterior margin. Abdomen black in front, orange-rust-red dorsally, surrounded by a dull black ground-tint, margined in front by a broad white band, extending halfway along the side, followed by a single white spot in the apical third, whose anterior half is flanked by a brownish elongate spot on each side; a single broad, central, longitudinal, dorsal white band runs from the anterior third of the spinners, being usually scalloped slightly in the posterior half; spinners brown, posterior pair black, with white hairs above; ventral area grey, spotted with black, clothed with grey hairs. Legs i. and ii. uniform red-brown, more or less clothed with white hairs; iii. and iv. paler, the femora with a central white and basal and apical black patches; tibiæ and protarsi of all four pairs more or less suffused with brown at the apex. Palpi brown; femur and patella thickly clothed with white hairs. The colour slightly varies, the lateral band often being broken to form a second spot. Femora i. and ii. are often clothed with white hairs on the apical half or third above. Sometimes the diamond-shaped band unites laterally with the lateral bands towards the posterior margin. The legs i. and ii. are also often black.

The female is coloured similarly to the male, but the lateral subapical spots on the abdomen are more isolated, the anterior marginal band being usually less pronounced. Legs i. and ii. deep purple-brown, the protarsi and tarsi paler, the femora with a broad pale annulation in the middle; iii. and iv. paler, annulate throughout with black. The white hairs tend to a yellowish tint, and the palpi are pale yellow with brown annulations. The femur, patella, and tibia tipped above with yellow-white hairs. The central abdominal band and lateral spots are more conspicuously cinctured with black than in the male; the carapace has not, however, the conspicuous white patches of that sex. The thoracic region has a

pale central band, with a procurved oblique dark line and another nearer the central line on each side, marking the position of the thoracic striæ.

♂. Palpal bulb simple; apical spine short, dilate at the base, sharply pointed, often with a small prominence on the inner side; tibial spur large and conspicuous from above, somewhat involved from below, bilobate and not easy to see.

♀. Vulva consisting of a large elongate area, having a long, conspicuous, central carina starting anteriorly from a semicircular convexity. The posterior margin is often slightly trilobate, the central lobe being more conspicuous. The details, however, vary very much, the posterior margin being simply rounded in some cases, not lobate. The anterior convexity has a pair of small round orifices.

*Hab.* MEXICO, Teapa (*H. H. Smith*); GUATEMALA (*Sarg*), Eastern District [1].

### 2. **Cyrene sanguinea.**

*Heraclea sanguinea,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 78 (April 1896) [1].
Var. *Heraclea paradoxa,* Peckh. loc. cit. p. 79 [2].

Types, ♂, in coll. Peckham.

*Hab.* GUATEMALA, Eastern District [1 2].

No figures or description of the male palpus are given. The spider is said to be closely allied to *C. regia,* but the mere statement that "the palpus, however, is different" does not help the student, or tend to advance science. The species is probably identical with the male here described as *C. pratensis,* and another synonym might possibly have been avoided by the barest mention of the form of the tibial spur.

### 3. **Cyrene longispina,** sp. n. (Tab. XVIII. figg. 14, 14 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

Dried example, ♂. Colour similar in most respects to that of *C. regia.* Femora of legs, however, not banded. Abdomen dorsally deep purple-brown or black, with a marginal band of white hairs in front, this uniting with a broad lateral and marginal band of white hairs, reaching almost to the spinners; a broad central band of white hairs reaching from the anterior marginal band to the spinners. The posterior legs are, perhaps, more densely clothed with white hairs than in *C. regia.* Ventral area black, with greyish hairs.

Palpus very different from that of *C. regia*: bulb with a long, slender, sinuous, apical spine, its point directed outward; tibial spur long, slender, sinuous, slightly notched below at the apex.

*Hab.* GUATEMALA (*Sarg*).

This spider resembles *C. regia* in general coloration, except that the abdomen is not orange-red above, but brown; and the tibial spur of the palpus is of a totally different structure, being long and slender. This spur much resembles that of the variety of *C. pratensis* in which the apical fissure is very shallow; but the much more slender apical spine and the deeply bilobate basal portion of the bulb of the latter will prevent any confusion of the two forms.

### 4. **Cyrene bilobata,** sp. n. (Tab. XVIII. figg. 15, 15 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

*Hab.* GUATEMALA (*Sarg*); PANAMA, Bugaba (*Champion*).

This species can be recognized at once by the deeply bilobate base of the palpal bulb. The carapace has a white central thoracic spot, a spot between the lateral eyes and behind the posterior laterals, and also a thin marginal band of white hairs, including the clypeus. The abdomen is brown-yellow, with a complete marginal white band and a broken central dorsal pale band. Ventral area black, with a central pale band, the black area itself margined with a band of white; between this last and the dorsal marginal white band is another dark band. Legs uniform yellow-brown, the apex of the femora dusky.

5. **Cyrene bulbosa,** sp. n. (Tab. XVIII. figg. 16, 16 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

*Hab.* Panama, Bugaba (*Champion*).

The carapace of the single specimen received of this spider is much rubbed and the abdomen is destroyed, but the palpal organs are so very distinctly different from those of any other forms in our collection that I do not hesitate to describe it as new. The carapace probably had no white spot behind the anterior eyes, but a central thoracic white band and a marginal white band embracing the clypeus. The legs are all more or less clothed and annulated with white hairs, especially in front of tibiæ and protarsi i. and ii. The mandibles have no clothing of white hairs in front.

6. **Cyrene prominens,** sp. n. (Tab. XIX. figg. 1, 1 *a–e*, ♂; 2, 2 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 8, ♀ 10 millim.

The abdomen of the female is not very well preserved, but the form of the vulva is so characteristic that there can be no mistake in identification. Legs orange, banded with brown as in *C. regia*. The carapace is clothed with yellow-grey hairs and has a pale central posterior ground-line, but no band of white hairs. For a description of the vulva, palpus, and other available points of difference, see the Table of species.

*Hab.* Mexico, Teapa (*H. H. Smith*); Costa Rica (*Rogers*).

This species is closely allied to both *C. regia* and *C. emarginata*, but may be distinguished by the form of the vulva, and of that of the palpal organs, and by the absence of rust-red hairs on the abdomen.

7. **Cyrene curvispina,** sp. n. (Tab. XIX. figg. 3, 3 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

Dried example, ♂. Colour similar to that of *C. pratensis*, except that the scales on the cephalic area are tinged with red, rather than green. Femur and patella of palpus clothed with white hairs. The abdomen has apparently no rust-red hairs above, but the colouring is obliterated. The species is, however, perfectly distinct from *C. pratensis* and all other described forms.

*Palpus*: apical spine of bulb long, slender, sharp, and gently curved; bulb not bilobate at the base; tibial spur very little developed, being very short and conical, its apex pressing inward (the tibia is, in reality, deeply emarginate on its outer anterior margin).

*Hab.* Guatemala (*Sarg*).

### 8. **Cyrene pratensis.** (Tab. XIX. figg. 4, 4 *a–e*, ♂; 5, 5 *a–d*, ♀.)

*Hyllus pratensis*, Peckh. Proc. Nat. Hist. Soc. Wisc. 1885, p. 70, t. 2. fig. 6 (♂) (Dec.)[1].

*Cytæa* (?) *concinna*, Peckh. loc. cit. p. 74, t. 2. figg. 8, 8 *a* (♀)[2].

Type, ♂, *H. pratensis*, and ♀, *C. concinna*, in coll. Peckham. Total length, ♂ 10, ♀ 8 millim.

Dried example, ♂. Carapace deep red-brown or black, having a central narrow band of white scales extending from between the posterior lateral eyes almost to the posterior margin; posterior two-thirds of the lateral margins with a narrow band of white scales; posterior margin devoid of scales. Cephalic area clothed with dull greyish-green scales; anterior central eyes set in yellowish-pink hairs. Abdomen bright rust-red dorsally, with a broad dark brown or black margin, and a broad central longitudinal band of white scales, pure white anteriorly, tinged with yellow and somewhat narrowed in the centre, becoming dilate again at the spinners; sides broadly clothed with grey or white hairs, which are not continued, however, in front; ventral area brown.

Mandibles deep red-brown, transversely rugulose. Palpi red-brown, the femora above clothed with white scales. Legs i. and ii. red-brown, iii. and iv. paler; tarsi pale yellow, clothed with brown hairs; the segments of iii. and iv. suffused with dusky brown at their apex.

Inner upper angle of mandible, which bears the usual two teeth, prominent. Palpal bulb deeply bilobate at its base, the outer lobe narrowed and prolonged; the apical spine slender, elongate, and slightly curving, its point directed outward; tibial spur slender (often stouter), elongate, and deeply bifid at its apex, forming a little fork, sometimes deeply cleft like the tongue of a snake.

♀. Carapace yellow; cephalic area brown or black, with brown hairs interspersed with rich red-brown ones, especially just above the anterior central eyes; all the eyes are encircled with yellow hairs; a conspicuous ⩘-shaped yellow mark, its branches converging in front but not actually meeting, lies on the anterior part of the cephalic area; and a yellow band, pointed in front, terminating behind in the middle of the thoracic area, starts from between the dorsal eyes. The carapace is also bordered with a band of whitish hairs on the sides, and besides numerous whitish hairs there are inconspicuous obliquely curving bands of these hairs on the sides just behind the cephalic area. Abdomen black in the centre, rich red-brown in front and at the sides of the dorsal area; with a central yellow arrow-head directed forwards, followed by a transverse-oval yellow spot centred with red-brown, behind which to the spinners is a band of rich red-brown, flanked on each side, touching it, by three small pure white spots; the front and lateral margins are yellow, the latter with a long sinuous dark line, more or less broken up, running towards the spinners; ventral area clothed with grey-white hairs. Mandibles, clypeus, palpi, and legs uniform yellow, clothed with grey-white hairs. In some examples the ventral area is dusky black, and the transverse-oval dorsal spot has oblique lateral branches.

Vulva consisting of a transverse sinuous rim in front, its centre projecting forwards and curving forwards at the sides, with a central longitudinal furrow, having a raised central carina; the posterior margin is sinuously emarginate and the sides are convex, with the oviducts showing dark beneath the surface.

*Hab.* Mexico, Teapa (*H. H. Smith*); Guatemala[1 2] (*Sarg*).

Since the above was written, Mr. Peckham's paper[1] has come to hand, and it enables me to identify the male and female described as his *Hyllus pratensis* and *Cytæa concinna* respectively. The coloration of the male, as is often the case, appears, at first sight, to be quite different from that of the female, and one would not suppose that they belonged to the same species. We have, however, luckily, an immature male which represents a conclusive transitional stage between the two sexes; it has the whole of the dorsal area of the abdomen red, and the spots, so conspicuous in the female, quite distinct, but very faint (in the adult male only the slightest traces of them remain). In the immature male also the ⩘-shaped or oblique pale lines on the cephalic area are quite distinct.

I cannot at present separate this species generically from *Cyrene delecta*, and therefore leave it in the same genus.

### 9. **Cyrene grisea,** sp. n. (Tab. XIX. figg. 6, 6 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

Carapace red-brown, with a broad marginal band, a patch behind the eyes, and a central posterior band, white. The base of the mandibles is densely clothed with white hairs, but the clypeus is devoid of them. The femur and patella of the palpus are also devoid of white hairs. Abdomen mouse-grey above, with a very indistinct central pale band, resolving itself into three triangular spots just above the spinners; ventral area grey, with three dusky brown longitudinal speckled bars; sides speckled with sooty-brown. Legs i. and ii. brown, tarsi yellow; iii. and iv. annulated with yellow and brown.

*Hab.* GUATEMALA (*Sarg*); PANAMA, Bugaba (*Champion*).

This species may, amongst those known to us, be recognized at once by the white hairs on the mandibles in front.

### 10. **Cyrene bifida,** sp. n. (Tab. XIX. figg. 7, 7 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

Carapace red-brown, with a broad white marginal band including the clypeus, a central white band extending from between the posterior eyes to the hind margin, and a broad white band behind the anterior central eyes. Mandibles at the base, apex of femur, and patella of palpus clothed with white hairs. Abdomen brown or black above, with a narrow central longitudinal dorsal pale band, becoming somewhat herring-boned towards the spinners; sides pale, speckled with brown; ventral area brown. Legs i. and ii. yellow-brown; iii. and iv. yellow, unicolorous.

*Hab.* PANAMA, Bugaba (*Champion*).

### 11. **Cyrene rustica.** (Tab. XIX. figg. 8, 8 *a–d*, ♂; 9, ♀.)

*Heraclea rustica,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 79, t. 4. figg. 2, 2 *b* (♂), 2 *a, c* (♀) (April 1896) [1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 9, ♀ 8 millim.

*Hab.* GUATEMALA [1] (*Sarg*).

The excellent drawing of the male palpus and the description quoted enable me to include the differential characters in the Table of species.

Our figures of the male are drawn from an adult male taken by Mr. Sarg.

### 12. **Cyrene minuta,** sp. n. (Tab. XIX. figg. 10, 10 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

*Hab.* PANAMA, Bugaba (*Champion*).

In this small species the legs i. and ii. are unicolorous, and iii. and iv. annulated. The carapace has a submarginal band of white hairs, including the clypeus. The abdomen is brown and speckled, with a very indistinct pale central band and a few very narrow chevrons towards the spinners. The tibiæ iii. and iv. are without small

dorsal basal spines. The tibial spur of the palpus is short and broad, with a central cusp much curved inwards. There is no apical palpal spine proper, but a broad chitinous process: see figure.

13. **Cyrene bifurcata,** sp. n. (Tab. XIX. figg. 11, 11 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

Dried example, ♂. Carapace deep brown, broadly and entirely surrounded, except behind, with white hairs. Cephalic area with a broad transverse band of white hairs behind the anterior row of eyes, sometimes uniting with the central pale band. Thoracic area with a central band of white hairs extending from between the posterior lateral eyes to more than halfway to the posterior margin. Abdomen brown, with a longitudinal central greyish band reaching from the anterior margin to the spinners, and a broad lateral grey band on each side; ventral area grey, speckled with brown. Femur and patella of palpus and the base of the mandible with white hairs. Legs i. and ii. yellow-brown; iii. and iv. yellow, clothed with white scales and brown hairs. The eyes of the anterior row are set in a narrow fringe of orange scales, besides those of the white band.

*Palpus.* Tibial spur long, straight, stout, simple, and blunt at the apex, viewed from the side; slightly curved at the apex and notched below, viewed from beneath; bulb slightly bilobate at the base, but not as in *C. pratensis*; apical spur very stout at the base, elongate, sinuously curved, its apex divided into two long slender spines, the upper outer one being the longest.

*Hab.* Panama, Bugaba (*Champion*).

This species is closely allied to *C. rustica* (Peckh.), but differs from it in having a long tibial spur and the prongs of the apical fork of the palpal spine less widely separate.

14. **Cyrene maculatipes,** sp. n. (Tab. XIX. figg. 12, 12 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

Dried example, ♂. Carapace black, entirely encircled, except behind, with a broad marginal band of white scales; clypeus with thick white hairs. Cephalic area clothed with orange-red scales above and on the sides; thoracic area with a band of white hairs from between the posterior lateral eyes meeting the marginal band behind. Anterior eyes set in bright orange scales. Palpi clothed with grey hairs, but without pure white hairs. Legs orange-yellow; femora i. and ii. with an inner apical, anterior apical, and basal black spot, clothed in front with a dense covering of orange scales; tibiæ and protarsi i. and ii. brown, the former jet-black beneath, the latter at the apex, with whitish hairs above, dorsally. Legs iii. and iv. more or less annulated and spotted with brown. Abdomen rich olive-brown or black above, with a broad central grey-white band reaching from the anterior margin to the spinners; anterior margin and sides slightly clothed with whitish hairs; ventral area grey.

*Palpi.* Very similar to those of *C. curvispina.* Tibia enlarged and very convex on the outer side, with a rather sharp point bent inwards to the base of the tarsus, between the margin of the tarsus and the bulb; apical spine practically the same as in *C. curvispina*, but the bulb is not so broad and more sinuous on the outer side, and the upper lobe has a distinct prominence on the inner side.

*Hab.* Mexico, Teapa (*H. H. Smith*).

Recognizable by its orange, black-spotted legs and the dense orange covering of the anterior side of femora i. and ii.

### 15. **Cyrene emarginata,** sp. n. (Tab. XIX. figg. 13, 13 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 10 millim.

Colour the same as in *C. regia*, but the femora of legs i. and ii. are not dark at the base, though this slight difference may not be constant. The carapace with a distinct central band of white hairs behind. Vulva short, broad, semicircular or rounded-quadrate, emarginate in the middle of the posterior margin, each side sloping upward to form a central ridge, with a dark spot at each anterior angle, and an irregular dark blotch towards the posterior margin.

*Hab.* GUATEMALA (*Sarg*).

This species differs from *C. regia* in the form of the vulva, and in the two less important details mentioned.

### 16. **Cyrene infuscata,** sp. n. (Tab. XIX. figg. 14, 14 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8·5 millim.

*Hab.* PANAMA, Bugaba (*Champion*).

Very similar to others of the group. The abdominal pattern is inconspicuous, though this would probably vary very much with individuals. The legs are distinctly annulated with black, and the two white spots towards the apex of the abdomen, on the dorsal margins, are conspicuous; beneath, the ventral area is much speckled with brown.

### 17. **Cyrene bicavata,** sp. n. (Tab. XIX. figg. 15, 15 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

*Hab.* PANAMA, Bugaba (*Champion*).

Though smaller in size, this species presents precisely the same general appearance as do *C. prominens* and *C. bicuspidata*. The vulva, however, is very different in form, presenting two large concavities, divergent posteriorly; while the posterior margin presents a rounded prominence in the middle, just as in *C. prominens*.

### 18. **Cyrene albosignata,** sp. n. (Tab. XIX. figg. 16, 16 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* GUATEMALA (*Sarg*).

The contrast between the white central dorsal abdominal band and the brown-speckled ground-work is more marked in this species than in others of the group known to me. Legs i. and ii. are unicolorous, those of the first pair being dark brown; iii. and iv. are very slightly and indistinctly annulate. The vulva is quite distinct in form: the posterior margin is deeply emarginate, with a pair of blue-black sinuous spots, marking convolutions of the oviduct, with a small concavity lying between them; the anterior half of the area is occupied by a broad transverse cavity.

### 19. **Cyrene hieroglyphica,** sp. n. (Tab. XIX. figg. 17, 17 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

Carapace orange, cephalic area and thoracic central band brown. Abdomen yellow, both dorsally and ventrally, encircled to the spinners by a narrow marginal black band, with two large black dorsal spots, the first horseshoe-shaped, the second consisting of a pair of elongate black blotches uniting with a square black spot immediately above the spinners. Ventral area yellow, with a long black spot on each side, in the apical half.

Legs entirely yellow; tibiæ iii. and iv. without any basal dorsal spine; patellæ i. and ii. with a small spine on the inner side.

*Hab.* MEXICO, Teapa (*H. H. Smith*).

### 20. **Cyrene flava,** sp. n. (Tab. XIX. figg. 18, 18 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* GUATEMALA (*Sarg*).

This species may be distinguished amongst others described here by the presence in the female sex of a small stout spine on the inner side of patellæ i. and ii. The tibiæ iii. and iv. have no small dorsal basal spine. The general colour is yellow, with brown cephalic arc and brown lateral bands on the carapace, while the abdomen has a central pale band margined with brown accent-like spots. The vulva is very distinct in form, being very deeply emarginate posteriorly, with a pair of orifices, about two diameters apart, anteriorly.

### 21. **Cyrene bisignata,** sp. n. (Tab. XX. figg. 1, 1 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* MEXICO (*H. H. Smith*); GUATEMALA (*Sarg*).

A very small species, recognizable generally by the presence of a small dorsal basal spine on tibiæ iii. and iv. and of a small spine on the inner side of patellæ i. and ii., characters distinguishing it from *C. fusca*, *C. delecta*, and *C. aprica*, though with the last two it has nothing in common, so far as the coloration is concerned. The vulva is very distinct and characteristic, see Plate. *C. bisignata* differs from all the other species of the genus in having a central *dark* thoracic band flanked on each side by a pale band, and a submarginal brown and a marginal pale band.

### 22. **Cyrene mediocava,** sp. n. (Tab. XX. figg. 2, 2 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8·5 millim.

*Hab.* MEXICO, Teapa (*H. H. Smith*); GUATEMALA (*Sarg*).

In general appearance similar to others of the group which have no rust-red pattern on the abdomen. The carapace is margined with a band of white hairs, and has a central posterior pale band. The legs are only very slightly annulate, but there is much variation in this respect.

23. **Cyrene laticava,** sp. n. (Tab. XX. figg. 3, 3 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7·5 millim.

*Hab.* Guatemala (*Sarg*).

Very similar to others of the group including *C. prominens*, *C. bicuspidata*, &c., differing from all, except *C. bicuspidata* and *C. bicavata*, in having a black patch on the inner anterior basal part of femora i. and ii., and a black spot on the inner side of patellæ i. and ii. Too great reliance, however, must not be placed on these slight differences in coloration, for much more material for comparison is required before one can judge of their real value for purposes of identification. The vulva is quite distinct in form: the posterior margin is deeply notched in the middle, the whole posterior half forming a broad transverse oval concavity, with a rounded protuberance in the middle of its anterior margin; in front of this lies an oval-oblong chitinous area clothed with hairs.

24. **Cyrene simplicicava,** sp. n. (Tab. XX. figg. 4, 4 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8·5 millim.

*Hab.* Mexico, Acapulco (*H. H. Smith*).

This species is very like *C. laticava* in general appearance, including the black patch on the inner anterior basal portion of femora i. and ii. The abdominal pattern, however, is much more clearly defined, the central pale dorsal band being broader, more conspicuous, and suddenly enlarged just behind the middle, and then again contracted, forming four or five chevrons. The vulva is quite distinct in form, having no anterior prominence and not being so deeply incised or emarginate behind.

25. **Cyrene pallida,** sp. n. (Tab. XX. figg. 5, 5 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 10 millim.

*Hab.* Guatemala (*Sarg*).

This large species belongs to the *C. prominens*-group, but the dorsal pale band is much broader and dilate behind, forming a large pale triangular spot. The abdomen is, however, denuded of hairs, so that it is difficult to say whether the pale markings would not be obscured in its normal condition. The carapace has a marginal band of white hairs and a central posterior white band, and the cephalic area is sparsely clothed with white hairs. The vulva is formed on the same plan as that of *C. albosignata* and *C. elegans*, consisting of a slightly emarginate sinuous posterior margin, with a pair of dark blotches in front marking the convolutions of the oviduct, while in front of these lie, instead of a large concavity, a pair of widely separated chitinous semilunar edges marking the entrances to a pair of orifices.

26. **Cyrene fusca,** sp. n. (Tab. XX. figg. 6, 6 *a–c*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* Costa Rica (*Sarg*).

This spider differs considerably in general appearance from others of the group. It bears a small dorsal spine on the base of tibiæ iii. and iv., and there are no spines on patellæ i. and ii. The abdomen is deep olive-brown, speckled with white, with an anterior marginal pale band and a postero-dorsal central pale band, the latter dilated on each side at its middle and also at its apex; sides and ventral area speckled with olive-brown. Cephalic area black, thoracic area broadly margined with black; no bands of pale hairs. The vulva is very inconspicuous, consisting of a broad oval chitinous area, more or less emarginate behind, with a pair of small concave orifices close to the posterior margin.

27. **Cyrene elegans,** sp. n. (Tab. XX. figg. 7, 7 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

*Hab.* Panama, Bugaba (*Champion*).

Very similar to *C. prominens* in general appearance, and with all the legs spotted and annulated with brown. The vulva is quite distinct, however, from that of those species most resembling it in general aspect, though formed on the same plan as the vulva of *C. albosignata*: the posterior margin is emarginate in the middle, sinuous on each side; in front of this margin lie a pair of dark spots, marking convolutions of the oviduct, and in front of this again lies a large shallow piriform cavity, partially concealed by long hairs.

28. **Cyrene bicuspidata,** sp. n. (Tab. XX. figg. 8, 8 *a*, *b*, ♂; 9, 9 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 7, ♀ 8 millim.

*Hab.* Panama, Bugaba (*Champion*).

It is almost impossible to believe that the female of this species, or the male either, is different from *C. prominens*. The coloration of the abdomen is precisely the same; the legs are annulate in both species, i., ii., iii., and iv. in the female, iii. and iv. in the male. The only differences lie in the greater length of the carapace in *C. prominens*, the absence of the dusky spot beneath the abdomen at the apex (but it is doubtful if this is constant), and, of course, in the vulva and palpal organs, which are quite distinct in structure.

29. **Cyrene delecta.** (Tab. XX. figg. 10, 10 *a–c*, ♂; 11, 11 *a*, *b*, ♀.)

*Cyrene delecta*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 68, t. 6. figg. 2 *a*, *b* (♂), 2, 2 *c* (♀) (April 1896) [1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 285 [2].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 6·8, ♀ 7 millim.

*Hab.* Mexico, Tepic (*fide Banks* [2]), Acapulco, Vera Cruz, Teapa (*H. H. Smith*); Guatemala (*Sarg*), Eastern district [1]; Panama, Bugaba (*Champion*).

Several adult and young males and young females occur in our collection, but no adult females.

### 30. **Cyrene aprica.** (Tab. XX. figg. 12, 12 *a*, *b*, ♂; 13, 13 *a*, ♀.)

*Cyrene aprica*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 66, t. 6. figg. 1, 1 *a* (♀) (April 1896) [1].

Type ♀, androtype ♂, in coll. Peckham. Total length, ♀ 7, ♂ 6 millim.

*Hab.* Guatemala [1] (*Sarg*).—Amazons, Santarem [1]; Brazil, Chapada [1].

Peckham gives no figure of the palpus of the male, so that it is difficult to compare *C. aprica* with the same sex of *C. delecta*. We have a single adult male, however, which I somewhat doubtfully refer to this species.

### 31. **Cyrene interrupta,** sp. n. (Tab. XX. figg. 14, 14 *a–d*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

Carapace with a central white band reaching from behind the central anterior eyes nearly to the posterior margin, and a very broad marginal white band, including also the clypeus. Abdomen with an anterior dorsal triangular rust-red patch, the rest of the dorsal area black-brown, spotted and banded with white; a short longitudinal central anterior white spot, with a much longer oblique marginal white band on each side of the rust-red area; a central triangular horse-shoe white spot at the commencement of the black area, connected by a fine white line with a large white spot on each side; a pair of white commas follow the central spot, and then a pair of larger and a pair of smaller white spots, the latter just above the spinners; on each side of the apical third lies a long white marginal band; sides dusky black; ventral area dusky-spotted, with a paler central band, itself also slightly spotted. Legs yellow, i. and iv. more or less distinctly annulated and spotted with black (the contrast is very marked in one example, in another scarcely noticeable); tibia i. is especially dark on each side. Sternum yellow, margined with black.

*Hab.* Guatemala (*Sarg*); Panama, Bugaba (*Champion*).

### 32. **Cyrene flavescens.** (Tab. XX. figg. 15, 15 *a*, ♀.)

*Pachomius flavescens*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 82, t. 6. figg. 11, 11 *a* (♀) (April 1896) [1].

Type, ♀, in coll. Peckham. Total length 6·4 millim.

*Hab.* Panama [1].

### 33. **Cyrene dybowskii.** (Tab. XX. figg. 16, ♂; 17, 17 *a*, ♀.)

*Attus dybowskii*, Tacz. Horæ Soc. Ent. Ross. viii. p. 96 (1871) [1].

*Pachomius dybowski* (Tacz.), Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 81, t. 6. figg. 7, 7 *a–c* (♀), 7 *d* (♂) (April 1896) [2].

Type ♂, gynetype ♀, in coll. Taczanowski. Total length of Peckham's examples, ♂ 6, ♀ 8·5 millim.

*Hab.* Mexico, Atoyac in Vera Cruz (*H. H. Smith*); Guatemala [2].—South America, Colombia [2], Cayenne [1].

34. **Cyrene niveoguttata,** sp. n. (Tab. XX. figg. 18, 18 *a*, *b*, ♂; 19, 19 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 6, ♀ 7 millim.

Colour the same in both sexes. Carapace dark mahogany, with a central thoracic white band, and a white transverse spot between the dorsal and lateral spots, and a white marginal line. Abdomen with a black anterior submarginal band, followed by a narrow white band extending also along the sides, with a median transverse narrow white band, each end dilate, and three small snow-white spots towards the apex, in a transverse row, one central, the others lateral; the anterior dorsal area is clothed with golden hairs and the central transverse band is preceded by a deep black transverse band; sides with a longitudinal wedge-shaped white band, low down about the middle towards the ventral area. Legs red-brown, or dull yellow more or less suffused with brown; coxæ orange, of i. and ii. spotted with black. The abdomen has also behind the transverse white band a pair of indistinct transverse curved pale bands, and the ventral area is black. Bulb of palpus bilobate at the base; apical spur short, stout, almost straight; tibia very short, as long as the patella, with a short, stout, curved spur.

For the vulva, see Plate.

*Hab.* Panama, Bugaba (*Champion*).

35. **Cyrene geminata,** sp. n. (Tab. XX. fig. 20, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7·5 millim.

*Hab.* Panama, Bugaba (*Champion*).

The abdomen of this spider, in the single example received, is rather shrunken, and the markings and colour are difficult to make out; but the form of the vulva is characteristic and not obscure, so that there will be little difficulty in identifying the species.

## THOTMES, gen. nov.

Type *T. paykulli* (Audouin, Savigny). Egypt.

The species selected as the type of this genus resembles *Cyrene* of Peckham very much in general appearance and structure; but the carapace is longer and more parallel-sided, the cephalic quadrangle is broader in proportion, and the sternum is more parallel-sided, not dilate behind. The palpus of the male is, however, totally different in form, though it is short and broad, very much as in *Habronattus*. For the same reason, it differs from *Hasarius* (type *H. adansoni*).

1. **Thotmes paykulli.** (Tab. XX. figg. 21, 21 *a–e*, ♂.)

*Attus paykulli*, Aud. in Savigny's Descr. Egypte, éd. 2, xxii. p. 172 (1825–27) [1].

*Hasarius paykulli*, Simon, Arach. Fr. iii. p. 81 (1876) [2].

*Menemerus paykullii*, Peckh. Trans. Wisc. Acad. Sci. vii. p. 84, t. 1. fig. 63 (♀), t. 6. figg. 63, 63 *a* (♂ ♀) (Sept. 1888) [3].

*Salticus vaillanti*, Lucas, Expl. de l'Algérie, Zool. i. p. 136 (1849) [4].

Total length, ♂ 10, ♀ 12 millim.

*Hab.* Guatemala [3] (*Sarg*).—Europe, Mediterranean region [1 2 4]; Malay Archipelago; Australia.

A cosmopolitan species. One cannot believe that it is congeneric with *M. semilimbatus*, the type of *Menemerus*, Simon.

### 2. **Thotmes fannæ.** (Tab. XX. figg. 22, 22 *a*, ♂.)

*Menemerus fannæ*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 74, t. 6. figg. 6, 6 *a–c* (♂) (April 1896) [1].

Type, ♂, in coll. Peckham. Total length 6·8 millim.

*Hab.* Guatemala [1].—South America, Colombia [1].

Judging from Emerton's figure of the palpus [1], this species appears to me to belong to *Heraclea*, Peckh., which I cannot at present separate structurally from *Cyrene*. If, however, Peckham is correct in supposing it to be congeneric with *Attus paykulli*, Aud., then *M. fannæ* will fall under *Thotmes*.

### 3. **Thotmes bicolor.**

*Menemerus bicolor*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 175 (April 1896) [1].

Type, ♂, in coll. Peckham. Total length 5·8 millim.

*Hab.* Guatemala, Eastern district [1].

No figures are given of this species, nor any mention made of the structure of the palpus, nor as to the specimen being adult or otherwise. Whether it belongs to the genus *Hasarius*, which has *H. adansoni* for the type, I cannot say, for Peckham holds that this type-species appertains to the same group as *Phidippus*, a classification I cannot understand, since he supposes it to be congeneric with *Attus paykulli*. For the present, *M. bicolor* can be left under *Thotmes*.

## HABRONATTUS, gen. nov.

Type *Habronattus mexicanus* (Peckham). Mexico.

♂. Cephalic quadrangle of eyes much broader than long, slightly wider behind; small eyes nearer the posterior laterals. Anterior row straight by the posterior margin; laterals one-half the diameter of the centrals. Mandibles normal, not developed, with one tooth on the lower margin, three on the upper, very close together. Patella iii. usually produced into one or more differently shaped spurs. Legs 3, 4, 1, 2 in both sexes. Tibia i. with 2—2—2 spines beneath, the inner spines of the basal two pairs being in the type-species (*H. mexicanus*) long and clavate. Protarsus i. with 2—2 spines beneath, no laterals. Legs iii. and iv. very spinose; protarsi with three rings of spines, a basal, median, and apical group; tibiæ iii. and iv. with a small dorsal basal spine.

♀. General characters similar to those of the male. Vulva with always a smaller or larger central transverse chitinous rim, marking the upper margin of a central orifice.

*Males.*

A. Tibia i. with the two inner spines towards the base elongated and clavate. Femur iii. much incrassate at the apex; patella iii. prolonged and attenuate at the apex above. [Palpal bulb with two spines starting close together from its posterior margin, and encircling the inner margin of the bulb, terminating at its apex (the two spines appearing as one); tibial spur long, stout, sinuous, and bluntly pointed and incurved at the apex. Femur i. not white on the inner side and with a thick fringe of clavate hairs on the outer side.] . . . . . *mexicanus*, Peckh.

B. Tibia i. without elongate clavate inner spines. Femur iii. not incrassate at the apex; patella iii. not produced at the apex.

*a*. Palpal bulb with two spines starting from points widely separate—the inner one geniculate, starting from near the centre, with a short basal straight piece, and a rather short curving spine set at right angles to it; the outer one starting from near the anterior part of the external margin, not geniculate, but very long, and encircling the whole bulb, its filiform apex lying in a very fine groove on the end of the tarsal sheath. Tibial spur of the palpus long, broad, obliquely truncate at the apex. Femur i. with no fringe of clavate hairs on the outside, but a thin fringe of long white hairs above, and like femur ii. entirely clothed on the inner side with cobalt-white scales . *viridipes*, Hentz.

*b*. Palpal bulb with two stout spines—the inner one the stoutest, not geniculate, springing from the outer posterior part of the margin, curving round, and the outer one terminating in a long filiform point, which lies in a groove beneath the apex of the tarsal sheath. Tibial spur of the palpus long, stout, slightly sinuous, bluntly pointed at the apex, not squarely truncate. Femur i. without a fringe either of clavate or white hairs . . . . . *perfidus*, sp. n.

*c*. Palpal bulb with two spines—the inner one stout, the outer slender; the former not geniculate, springing from the inner side of the bulb, curving round; the inner spine terminating just beyond the apex of the bulb, the outer spine filiform and lying in a groove beneath the apex of the tarsal sheath. Tibial spur of the palpus very broad. Femur, patella, and tibia i. fringed with hairs . . . . . *paratus*, Peckh.

*Females.*

A. Posterior lobes of vulva converging behind.

1. Abdomen with an indistinct pale marginal band, sometimes broken into two more or less distinct oblique pale lines on each side; and a central posterior ∧-shaped pale spot (or a series of 2 or 3 disconnected chevrons), followed by an elongate pale dash on each side; sometimes all these coalesce to form a single elongate pale blotch. Vulva consisting of a short transverse rim, with an elongate semicircular

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| chitinous ridge on each side, not meeting on the anterior margin; the posterior lobes on each side converging at the hind margin, where a pair of orifices are sometimes evident. Epigynal area much larger in proportion than in *H. viridipes* . . . . . | *mexicanus,* Peckh. |
| 2. Abdomen with three or four pale chevrons only on the central dorsal apical half. For the vulva, see Plate . . . . . | *latens,* Peckh. |
| 3. Abdomen with an anterior marginal pale band broken in the centre, an oblique pale band on each side about the middle, a central apical elongate diamond-shaped white spot, and a pair of white spots on each side close to the apex. For the vulva, see Plate . . . . . | *zebraneus,* sp. n. |
| B. Posterior lobes of vulva widely separate behind. (Abdomen variable in pattern, which consists either of a continuous lateral irregular pale band, or of four oblique spots, with an indistinct central anterior dorsal pale band, followed by a very distinct central pale spot, this followed to the spinners by two or three very slender ^-shaped bars, but without the elongate pale dash on each side above the spinners. Vulva with the usual short transverse rim, and a transverse oval, continuous, encircling chitinous rim anteriorly; the posterior lobes on each side being widely separate at the hind margin. Epigynal area much smaller in proportion.) . . . . . | *viridipes,* Hentz. |

Note.—I cannot include *H. belligerus* (Peckh.) in this Table, because it seems to me that the full figure given by Peckham represents *H. mexicanus.* The figure given as the female of *H. mexicanus* somewhat resembles that described here as *H. zebraneus.* *H. cœcatus* and *H. aztecanus* are unknown to me.

## 1. **Habronattus mexicanus.** (Tab. XXI. figg. 1, 1 *a–h*, 2, ♂; 3, 3 *a*, *b*, ♀.)

*Habrocestum mexicanum,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 61, t. 5. figg. 7, 7 *b*, *c*, *d* (♂), 7 *e* (nec 7 *a*) (♀) (April 1896) [1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 5, ♀ 6 millim.

♂. Carapace black, with a narrow band of rosy-white scales encircling the clypeus and lateral margins. Cephalic area thickly clothed with fawn-coloured scales (possibly, in examples not rubbed, continued further over the central thoracic stria); a pair of rosy-fawn-coloured bands run from the posterior lateral eyes to the posterior margin, these being slightly coalescent in the centre. The legs are orange, speckled with brown; femur i. black, clothed with a thick fringe of more or less speckled clavate hairs; patella and tibia, and the base of protarsus i., with a black band on the inner side; patella iv. with a pure white spot of scales at the base in front, much less distinct in some examples. Abdomen black, with a broken, or unbroken, narrow pale encircling marginal line, and a central dorsal anterior band of pale scales, often obliterated, followed by three small white ^-shaped bars or chevrons, sometimes coalescent, and on each side at the apex, just before the spinners, a single elongate white dash-like spot.

♀. The characteristic markings are given in the Table of species.

*Hab.* Mexico, Reynosa and Refugio (*Townsend* [1]), Petapa, Amula, Omilteme, Chilpancingo, Teapa (*H. H. Smith*); Guatemala (*Sarg*).

Numerous males and some females of this species were taken by Mr. Sarg in Guatemala, others of both sexes by Mr. H. H. Smith in Mexico. There is no reasonable doubt that the males received by us are identical with Peckham's

specimens, admirably figured by Mr. Emerton [1]. The clavate hairs on tibia i., evident in fig. 7 *b*, are quite characteristic, though Peckham does not mention them in his description. As to the females in our collection, they almost certainly belong to *H. mexicanus*, for it is very unlikely that with so many males taken there should be no corresponding females; and yet these closely resemble the figure given by Emerton of *H. belligerus*. His figure of the female of *H. mexicanus* does not agree with the specimens of that sex which I myself regard as belonging to *H. mexicanus*.

### 2. **Habronattus viridipes.** (Tab. XXI. figg. 4, 4 *a*, *b*, ♂; 5, 5 *a*, *b*, ♀.)

*Attus viridipes*, Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 362, t. 22. fig. 5 (♀) (1845) [1]; Burgess, Spid. U.S.A. p. 66, t. 9. fig. 5 (♀) (1875) [2].

*Habrocestum viridipes*, Peckh. Trans. Wisc. Acad. Sci. vii. p. 60, t. 1. fig. 43, t. 4. fig. 43 *a* (♀), t. 4. fig. 43 (♂) (1888) [3].

Total length, ♂ 4·8, ♀ 5·8 millim.

♂. Carapace with a transverse band of white scales behind the anterior eyes, followed by a broad patch of fawn-coloured hairs covering the whole cephalic area; a bar of white scales runs from behind the posterior eyes to the hinder margin, meeting a postero-lateral marginal band of the same. Clypeus fringed and clothed with pink and green iridescent hairs and scales. Tarsus of palpus brown; apex of femur and patella clothed with pure white scales, the latter segment tipped with umber-red scales. Femora i. and ii. black, clothed on the anterior (or inner) side with cobalt-white scales and fringed above with hairs of the same colour; the rest of the legs black, clothed dorsally with rust-red and brown scales. Legs iii. and iv. black, clothed with brown, red, and white scales, especially with white scales on the femora, whose apices are conspicuously marked with a pale spot. Abdomen black, clothed with rust-brown hairs, with an anterior and central dorsal band of ochre-white scales and some lateral marginal spots of the same colour; the central band resolves itself behind into two or three ∧-shaped marks. Underside black, clothed with rosy-ochre-white scales.

The characters of the female and the other important points of structure of the male are given in the Table. The clypeus is clothed with white hairs.

*Hab.* North America, Texas, Carolina [1].—Mexico, Chilpancingo, Cuernavaca, Teapa (*H. H. Smith*); Guatemala (*Sarg*).

Judging by the, apparently, excellent figure of the male palpus given by Peckham [3] (t. 4. fig. 43), and of the female abdomen (t. 1. fig. 43), one would not hesitate to refer our examples to the species identified by him as *Attus viridipes*, Hentz. On the latter point, the question must for the present be left to Peckham's judgment; but it is a pity that he has given no description of the coloration of the male, which might confirm one's conclusions, based on the figure of the palpus.

### 3. **Habronattus belligerus.** (Tab. XXI. figg. 6, 6 *a*, ♀.)

*Habrocestum belligerum*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 60, t. 5. fig. 5 *a* (? nec fig. 5) (♀) (April 1896) [1].

Type, ♀, in coll. Peckham. Total length 6·5 millim.

*Hab.* Guatemala [1].

I strongly suspect that *H. belligerus* is the female of *H. mexicanus*, for I have before me males and females from Guatemala with exactly the coloration described by Peckham; I doubt, however, if his fig. 5 *a* represents the vulva of fig. 5, but rather that of 7 *a* (*H. mexicanus*), 7 *e* being more likely to be the vulva of 5.

### 4. **Habronattus latens.** (Tab. XXI. fig. 7, ♀.)

*Habrocestum latens*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 60, t. 5. figg. 6, 6 *a* (♀) (April 1896) [1].

Type, ♀, in coll. Peckham. Total length 5 millim.

*Hab.* British Honduras [1].

According to Peckham this species is closely allied to *H. belligerus*, which I believe to be the female of *H. mexicanus*.

### 5. **Habronattus paratus.** (Tab. XXI. figg. 8, 8 *a*, ♂.)

*Habrocestum paratum*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 63, t. 5. figg. 8, 8 *a*, *b* (♂) (April 1896) [1].

Type, ♂, in coll. Peckham. Total length 5 millim.

*Hab.* Guatemala, Eastern district [1].

According to Peckham, the femur, patella, and tibia of the first pair of legs are enlarged. In the figure of the palpus the spines are two in number, starting from the centre of the inner margin of the bulb, the inner spine being short and stout, the outer one long and filiform; the tibial spur is represented as being very broad and, apparently, squarely truncate at its apex.

### 6. **Habronattus zebraneus,** sp. n. (Tab. XXI. figg. 9, 9 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

Carapace brown, mottled with white and red-brown hairs. Coxæ and trochanters, and the bases of the posterior femora and tarsi, yellow; the rest of the legs mottled brown. Abdomen mottled brown, with a submarginal anterior pale band, broken in the centre, a lateral oblique pale bar on each side about the middle, with a pair of indistinct pale spots between them in the centre of the dorsal area; a median elongate diamond-shaped pale bar towards the apex, a small lateral spot on each side of it, and a very small pure white spot on each side just above and close to the spinners; ventral area laterally mottled brown, in the centre pale, with three longitudinal brown bars.

*Hab.* Mexico, Tierra Colorada in Guerrero (*H. H. Smith*).

### 7. **Habronattus perfidus,** sp. n. (Tab. XXI. figg. 10, 10 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 3 millim.

Carapace clothed with brown and white hairs, with a broad, brown, submarginal and a central posterior, longitudinal, brown band; cephalic area brown, but thickly clothed with white hairs. Legs yellow, mottled with brown, and clothed with white scales and brown hairs. Abdomen: dorsal area black or dark brown with minute pale spots, with a broad white marginal band entirely encircling it, and a

central short anterior wedge-shaped pale band, its apex extending just beyond the middle; lower lateral area brown; ventral area pale, with three longitudinal brown bars. Clypeus clothed with white hairs. Leg i. without the tibial clavate spines noticeable in *H. mexicanus*. Palpus similar in general character to that of others of the genus; the bulb is bilobate, and two stout spines (the inner one being the stoutest) spring from the outer lower part, curving round, the outer one terminating in a filiform point, which lies in the usual groove beneath the apex of the tarsal sheath; the tibial spur is stout, slightly sinuous, bluntly pointed at the apex.

*Hab.* North America (*Sarg*).

A single male only of this very small species was sent by Mr. Sarg.

### 8. **Habronattus cœcatus.**

*Attus cœcatus*, Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 361, t. 32. fig. 2 (♀) (1845)[1]; Burgess, Spiders U.S. p. 65, t. 9. fig. 2 (♂) (1875)[2].

*Habrocestum cœcatum*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 286[3]; Peckh. Trans. Wisc. Acad. Sci. vii. p. 60, t. 1. fig. 42, t. 4. figg. 42 *a* (♀), 42, 42 *b* (♂) (1888)[4].

*Hab.* North America, New York[4], Pennsylvania[4], Alabama[1 2].—Mexico, Tepic[3].

Recorded very doubtfully from Mexico by Mr. Banks.

### 9. **Habronattus aztecanus.**

*Habrocestum aztecanum*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 287, t. 17. fig. 9 (♂)[1].

*Hab.* Mexico, Tepic[1].

The figures of the palpal bulb and of the dorsal spur are not sufficiently detailed to enable one to compare the characters of *H. aztecanus* with those of the species in our collection. The two large black spots on the shoulders of the abdomen, and the apical half being black with a central triangular white spot, should, however, prove a good clue towards its identity.

## COLONUS, gen. nov.

Type *C. puerperus* (Hentz). North, Central, and South America.

♂. Anterior row of eyes slightly recurved by the posterior margin; cephalic quadrangle broader than long, small eyes much nearer the anterior laterals. Clypeus about half the height of the anterior central eyes. Tibia i. with 2—2 spines beneath in the apical half, and two pairs of fine sensory hairs towards the base; tibia ii. with 2—2—2 spines beneath and some laterals. Protarsi i. and ii. with 2—2 spines beneath, iv. armed with three distinct groups of spines. Tibiæ iii. and iv. with a small dorsal basal spine. Sternum about twice longer than broad, rather dilate behind. Mandibles flattened above, transversely rugulose, with four small teeth on the upper and three small teeth on the lower margin. Posterior spinners the longest; centrals nearly as long, but much more slender; inferiors as long as the medians, but stouter.

### 1. **Colonus puerperus.** (Tab. XXI. figg. 11, 11 *a–d*, ♂; 12, 12 *a–e*, ♀.)

*Attus puerperus*, Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 360, t. 21. fig. 22 (♀) (1845)[1]; Burgess, Spiders U.S. p. 64, t. 8. fig. 22, t. 18. fig. 28 (1875)[2].

*Plexippus puerperus*, Peckh. Proc. Nat. Hist. Soc. Wisc. 1885, p. 68 [3]; Trans. Wisc. Acad. Sci. vii. p. 33, t. 1. fig. 23, t. 2. figg. 23, 23 *a* (♂), t. 3. fig. 23 *b* (♀) (1888) [4]; Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 15 (♀) (1896) [5].

*Attus sylvanus*, Hentz, loc. cit. p. 364, t. 22. fig. 10 (♂) [6].

*Attus branickii*, Tacz. Horæ Soc. Ent. Ross. viii. p. 94 (1874) [7].

*Attus agrestris*, Peckh. New and little-known Attidæ U.S.A. p. 12 (1883) [8].

Total length, ♂ 11, ♀ 13 millim.

*Hab.* North America, Georgia, Florida, Texas, California [4 5].—Mexico [5], Chilpancingo, Atoyac, Teapa (*H. H. Smith*); Guatemala [4] (*Sarg*), Guatemala city (*Stoll*); Panama, Bugaba (*Champion*).—South America, Colombia [5], Brazil.

This species is very widely distributed, extending through the Southern States of North America, California, Central America, and Brazil. Whether it is, as Peckham supposes, identical with *Alcmena pallida*, C. L. Koch, I cannot say; and rather than restore the genus *Alcmena*, with a type-species which may never be identified, a new generic name is given to include *Attus puerperus*, Hentz, and an allied form.

### 2. **Colonus crucifer**, sp. n. (Tab. XXI. fig. 13, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

Carapace dilated behind the posterior eyes, orange-yellow, suffused with brown, the cephalic area divided into four square black spots by a yellow cross, with a tuft of white hairs between and behind the anterior central eyes and one on the inner side of the anterior laterals. Abdomen white, mottled with brown, with five or six dark central dorsal chevrons in the apical two-thirds; ventral area speckled with black. Legs unicolorous yellow.

*Hab.* Panama, Bugaba (*Champion*).

A very much smaller species than *C. puerperus*, but with the characteristic pairs of setigerous spines beneath tibia i.

## Group **MARPISSEÆ** *.

The genera into which the spiders belonging to this group fall may be distinguished as follows:—

A. Carapace broadest in the middle, narrowed both in front and behind.
  *aa*. Tibia i. with 2—2—2—2 spines beneath, or 1—1—1—1 on the inside at least.
    $a^1$. Tibia i. with 1—1—1—1 spines on both sides, and 1—1 laterals on the inner side in addition . . . . . Epinga, Peckh.
    $a^2$. Tibia i. with 1—1—1—1 spines on both sides, or on the inner side only, but no laterals . . . . . Marpissa, C. L. Koch.
  *bb*. Tibia i. with 2—2—2 spines on each side beneath, or spines more or less obsolete.

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* The term "Marpisseæ" is substituted for "Marptuseæ," used by me for this group, *anteà*, p. 178, the generic name *Marpissa* antedating *Marptusa* by more than thirty years.

1. Tibia i. with 2—2—2 spines on each side beneath . . . . PHANIAS, gen. nov.
2. Tibia i. with one or two short spines, or none at all beneath . METACYRBA, gen. nov.

B. Carapace distinctly narrowed towards the anterior margin, being broadest behind . . . . . PARAMARPISSA, gen. nov.

NOTE.—This division is, of course, purely tentative; but the characters will be some guide as to the spiders which are referred to under the group Marpisseæ.

## EPINGA.

*Epinga,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. ii. 2, p. 94 (Nov. 1894).

Type *E. chapoda*, Peckham. Brazil.

Small eyes nearer the anterior laterals. Tibia i. with 2—2—2—2 spines beneath and 1—1 laterals on the inner side. Protarsus i. with 2—2 spines beneath; protarsi iii. and iv. with two spines at the apex and one only on the outer side towards the base. Tarsi of legs i. and ii. fusiform. Femora i. and ii. with the usual group of three spines at their apex in front. Sternum twice longer than broad, very narrow between the anterior coxæ, which are almost in contact. Coxa i. shorter than iv. Mandibles with one tooth above, two below. Posterior spinners more slender than the anteriors and distinctly longer; centrals slightly shorter than the anteriors.

### 1. **Epinga ornata.** (Tab. XXI. figg. 14, 14 *a*, ♂; 15, 15 *a*, *b*, ♀; 16, var., ♀.)

*Bavia ornata,* Peckh. Proc. Nat. Hist. Soc. Wisc. 1885, p. 80, t. 2. figg. 11 *b* (♂), 11, 11 *a* (♀)[1].

*Epinga ornata,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. ii. 2, p. 95 (Nov. 1894)[2]; op. cit. iii. 1, p. 9 (April 1896)[3].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 8, ♀ 11 millim.

*Hab.* CENTRAL AMERICA[1]; GUATEMALA[2 3] (*Sarg*), Panzos (*Champion*).

Females only of this large and beautiful species occur in our collection.

## MARPISSA.

*Marpissa,* C. L. Koch, Die Arachn. xiii. p. 57 (1846).

*Marptusa,* Thorell, Ann. Mus. Civ. Stor. Nat. Genova, x. p. 561 (1877).

Type *M. muscosa* (Clerck). Europe.

♀. Tibia i. with 2—2—2 spines, the first pair sub-basal, and one lateral on each side (in some species on the inner side only); protarsi i. and ii. with 2—2 spines beneath. Femora with two long spines above and three shorter ones near the apex, but not closely grouped. Patellæ without spines. Tibia iii. without any spines above, two at the apex beneath, and 1—1 laterals; tibia iv. with 1—1 beneath; protarsi iii. and iv. with 1—1 beneath and four at the apex. Coxa i. slightly shorter than coxa iv. Sternum twice longer than broad, dilated behind and very narrow between coxæ i. Small eyes midway between the laterals. Ocular quadrangle broader than long, as wide in front as behind. Carapace with a depression behind the cephalic area, where the central stria is situated, elongate, more or less compressed. Abdomen very elongate, more or less parallel-sided, and compressed.

The species here referred to this genus differ somewhat from the typical form (*M. muscosa*), chiefly in having more slender anterior legs and only three (instead of four) spines on the outer side of tibia i. It is quite possible that *M. melanognatha* will eventually be referred to another genus. I take *M. muscosa* as the type, because

it was selected by Thorell in 1870 for *Marpissa*, C. L. Koch. The structural characters are shown on our Plate [Tab. XXI. figg. 17, 17 *a–c*, ♀ ].

The Central-American species known to me may be recognized as follows :—

*Males.*

I. Abdomen grey-white, with a narrow longitudinal dorsal central brown band, resolving into three or four brown chevrons above the spinners.
(Bulb simple, without any prominent tooth or spur in the centre. Apical spine stout, straight, slightly curved at the apex. Tibial spur of palpus very slight, scarcely noticeable.) . . . . . *melanognatha*, Lucas.

II. Abdomen black, with a broad more or less dentated or scalloped longitudinal dorsal central white or pale band.

A. Apical spine of palpal bulb bifurcate . . . . . *familiaris*, Hentz.

B. Apical spine of palpal bulb simple.

*a*. Tibial spur of palpus very conspicuous, stout, curved, pointed at the apex, with a stout conical spur near its base beneath the segment. Bulb enlarged, with a stout anterior central spur, best seen in profile. Apical spine much larger, stout at the base, strongly curved, aculeate at the apex . . . . . *magna*, Peckh.

*b*. Tibial spur of palpus long, slender, slightly curving downwards. Bulb not so greatly enlarged, without a central spur, but with a slight inner basal cusp. Apical spine much smaller, stout, and curved . . . . . *minor*, sp. n.

*Females.*

I. Abdomen grey-white, with a narrow longitudinal central brown band, resolving into three or four brown chevrons above the spinners.
(Vulva consisting of a large triangular-oval area having two elongate cavities on each side of a central carina, narrow in front, broadly dilate behind, where on each side is situated a dark orifice.) . . *melanognatha*.

II. Abdomen black, with a broad more or less dentated or scalloped longitudinal dorsal central white or pale band.

1. Vulva consisting of a large triangular-oval area, having near its anterior margin a transverse oval concavity, whose posterior inner margin is deeply indented in the middle; and a pair of circular adjacent dark spots near the posterior margin of the vulval area, which is itself scalloped in the middle . . . . . *magna*.

2. Vulva without anterior transverse oval concavity.

*a*. For vulva see Plate . . . . . *familiaris*.

*b*. For vulva see Plate . . . . . *melanura*, sp. n.

Note.—I do not know *M. familiaris*, and cannot therefore describe the vulva in comparative diagnosis with that of *M. melanura*. The species are, however, obviously quite distinct and will not be confused, with Peckham's figure of the vulva of the former as a guide.

1. **Marpissa melanognatha.** (Tab. XXI. figg. 18, 18 *a–e*, ♂; 19, 19 *a–c*, ♀.)

*Salticus melanognathus*, Lucas, Hist. Nat. Canaries, Arachn. p. 29, t. 7. fig. 4 (♀)[1].

*Menemerus melanognathus* (Lucas), Peckh. Trans. Wisc. Acad. Sci. vii. p. 82, t. 1. figg. 62 (♂), 62 *a* (♀), t. 6. figg. 62 (♂), 62 *a* (♀) (1888)[2].

*Marptusa melanognatha*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 285[3].

*Hab.* North America.—Mexico, Sonoran region, Hermosillo, and Minatitlan[3] (*fide Banks*), Teapa (*H. H. Smith*); Guatemala[2] (*Sarg*); Costa Rica (*Rogers*); Panama, Bugaba (*Champion*).—South America.

If this species be really identical with *Salticus nigrolimbatus*, O. P.-Cambr., and the others quoted by Peckham, then it is (as he remarks) truly cosmopolitan, for he quotes *M. melanognatha* as occurring also in Europe, Africa, the Canary Is., and the Malay Archipelago.

2. **Marpissa familiaris.** (Tab. XXII. figg. 1, ♂; 2, 2 *a*, ♀.)

*Attus familiaris*, Hentz, Spid. U. S., ed. by Burgess, p. 56, t. 8. fig. 7 (♀), and t. 18. figg. 74, 99 (♀)[1].

*Marptusa familiaris*, Peckh. Trans. Wisc. Acad. Sci. vii. p. 80, t. 1. fig. 60 (♀), t. 5. fig. 60 (♂) (1888)[2]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 284[3].

*Hab.* North America[1 2].—Mexico, Minatitlan[3].

Our figures of this species are taken from Peckham's work.

3. **Marpissa magna.** (Tab. XXII. figg. 3, 3 *a–c*, ♂; 4, 4 *a*, ♀.)

*Marptusa magna*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. ii. 2, p. 87, t. 8. figg. 3, 3 *a* (♀) (Nov. 1894)[1].

Type, ♀, in coll. Peckham: total length 12 millim. Deuterotype, ♂, in coll. Godman & Salvin: total length 10 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*); Guatemala (*Sarg*).—Amazons, Santarem[1].

The male, which is here described and figured for the first time, resembles the female in coloration. An immature specimen of the former has a jet-black band down the ventral area, but it is almost obliterated in the adult male and female, perhaps owing to the action of the alcohol.

4. **Marpissa minor,** sp. n. (Tab. XXII. figg. 5, 5 *a*, ♂; 6, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 7, ♀ 10 millim.

Colour very similar in the two sexes. Carapace black or red-brown, with a fine white marginal line, and a broad central band of white hairs extending from the anterior eyes to the posterior margin, where it becomes gradually narrower. Abdomen with a broad lateral dorsal brown band extending from the anterior margin to the spinners, leaving a broad central pale band, more or less scalloped or indentate, on the sides of the apical half, the indentations being of a deeper black, as also are the outer margins of the lateral brown bands; lower lateral and ventral areas white.

Legs yellow, i. and ii. darker and more or less blotched with brown; iii. and iv. with a dusky spot at the apex

of the protarsi. Basal half of the femur of the palpus of female brown, the rest yellow. (Vulva not fully developed.)

*Hab.* Mexico, Teapa (*H. H. Smith*).

Very similar to *M. melanura*, but without the pale lateral abdominal bar and not suffused below with black. The central cephalic pale blotch also begins behind the anterior eyes.

### 5. **Marpissa melanura,** sp. n. (Tab. XXII. figg. 7, 7 *a–c*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

Carapace almost black, with white scattered hairs, a white marginal band and a central white blotch behind the central stria abruptly attenuate and extending to the posterior margin. Abdomen white, with a pair of irregular black bands on each side of the dorsal area, leaving a broad central white band and a narrow lateral pale band, which is bounded on the sides below by another dark lateral band, the pale one being broken by dark spots and blotches; lower lateral area pale; ventral area black. Legs and palpi yellow, legs i. and ii. and the palpi spotted and blotched with brown; femur i. brown on both sides.

Vulva varying individually; consisting of a large rounded triangular area, narrower behind, slightly notched in the centre of the posterior margin, with a central longitudinal depression broader in front, attenuate behind, having a pair of widely separate crescentic marks, one and half times the length of one of them apart, anteriorly on each side of the central depression.

*Hab.* Guatemala, Guatemala city (*Stoll*).

## PHANIAS.

Type *Phanias flavostriatus*, sp. n. Mexico.

The type-species of this genus differs from that of *Marpissa* in possessing only three pairs of spines beneath tibia i. and from the Central-American members of the same genus by the same character, save that in the latter there are four spines on the inner side only. From *Metacyrba* it may be known by the latter having usually only one or two spines beneath tibia i., and from *Paramarpissa* by the almost parallel-sided carapace. The sternum, moreover, is not dilated behind as in the true *Marpissa*.

### 1. **Phanias flavostriatus,** sp. n. (Tab. XXII. figg. 8, 8 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

Carapace red-brown, clothed with white hairs; cephalic area with white (yellow in alcohol) cretaceous cells below the epidermis. Clypeus clothed with white hairs; a group of stiff curved bristles is situated below the small eyes on each side. Abdomen red-brown above, speckled and streaked with yellow; with five transverse, variously formed, yellow bars, the first on the anterior margin forming two small central spots, the second being divided in the middle, the third united in the centre to form a square spot, the fourth united and forming a short longitudinal bar, the fifth lying just above the spinners; lateral and ventral areas dusky white, thinly speckled with brown, the ventral area with a broad central brown longitudinal band extending from the genital rima to the spinners. Leg i. red-brown, the coxæ and tarsi paler yellow, clothed with short white hairs. Legs ii., iii., iv. clear yellow, with a single brown spot on each side of the femora at the apex.

Patellæ without spines; tibiæ i. and ii. with 2—2—2 spines beneath (no lateral spine); iii. and iv. with a single spine beneath, and with two apical spines. Protarsi i. and ii. with 2—2 spines beneath; iii. and iv.

usually with a single spine beneath, and iii. with four, iv. with three, apical spines beneath. Sternum elongate-oval, narrowed between the anterior coxæ, but not dilated behind.

Vulva with a deep, short, semicircular notch in the centre of the posterior margin, with two chitinous grooves situated about their own length from the posterior margin, a little over their own length apart, slightly convergent posteriorly, both being embraced in a broad, transverse oval, brown area.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

This species differs from the typical *Marpissa muscosa* in the absence of the lateral inner spine on tibia i. and the non-dilated sternum.

## METACYRBA, gen. nov.

Type *Metacyrba tæniola* (Hentz). North America.

♀. Leg i. much incrassate; femur i. much compressed, without spines, or with only a very minute one besides the two long dorsal spines; tibia i. without any spines, or at most with three on the outer side only; protarsus i. with 2—2 spines beneath; tibiæ iii. and iv. with 1 or 1—1 spines beneath; patellæ of all four pairs without spines. Sternum much attenuate in front between the anterior coxæ, dilate behind. Cephalic quadrangle much broader than long; carapace rugulose, without any decided central depression behind the posterior eyes.

### 1. **Metacyrba tæniola.** (Tab. XXII. figg. 9, ♂; 10, 10 *a*, *b*, ♀.)

*Attus tæniola,* Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 353 (1845)[1]; Spid. U.S. ed. by Burgess, p. 56, t. 8. fig. 5[2].

*Cyrba tæniola,* Peckh. Trans. Wisc. Acad. Sci. vii. p. 75, t. 5. figg. 56, 56 *b* (♂), t. 6. fig. 56 *a* (♀)[3].

Total length, ♂ 4 millim. (sec. Peckham), ♀ 9 millim. (Mexican examples).

This fine species may be recognized at once by its black carapace and abdomen, the latter with a pair of thin white dorsal longitudinal lines, sometimes more or less interrupted, enclosing a paler brown band, extending from the anterior margin to the spinners. Legs i. and ii. mahogany-black; protarsus and tarsus i. orange; tibia, protarsus, and tarsus ii. dull orange; patella, tibia, and tarsi iii. and iv. orange, the vent black-brown. Sternum, coxæ of legs, and ventral area dark mahogany-black. The vulva presents a conspicuous wedge-shaped groove, its apex directed backward, with a central convex wedge-shaped piece.

*Hab.* North America[1 2 3].—Mexico, Amula in Guerrero (*H. H. Smith*).

I cannot find that this species is congeneric with Simon's type of *Cyrba*, and therefore a new genus is required for it. One may not, however, have correctly identified Peckham's *C. tæniola* (Hentz).

## PARAMARPISSA, gen. nov.

Type *Paramarpissa tibialis*, sp. n. Mexico.

Similar in general characters to *Marpissa*, but with only one or two, or sometimes without any, spines beneath tibia i. Carapace very distinctly narrower in front, thus differing from that of *Marpissa* and *Metacyrba*.

### 1. **Paramarpissa tibialis,** sp. n. (Tab. XXII. figg. 11, 11 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

Carapace black, with a broad central band of white hairs and a narrow white marginal band. Abdomen with

a pale central longitudinal dorsal band, with a lateral submarginal black band extending from the anterior margin to the spinners. Legs unicolorous red-brown, those of the first pair the darkest.

General structure very similar to that of *Marpissa*, but the carapace is distinctly narrowed in front. Leg i. incrassate, and having beneath a single cusp on the inner side. Patella i. with 2—2 short stout cusps beneath. Coxæ i. almost in contact over the sternum.

Palpus very short and stout, the bulb much enlarged and the tarsus bent downwards towards the inner side of the femur; tibia and patella short, the patella half as long as its diameter, the tibia a little longer than the diameter. Tibial spur stout, strongly curved downward at its apex, forming a sharp black spine. The base of the tarsus on the outer side is produced into a stout blunt curved spur, lying between the bulb and the tibial spur. The bulb itself is divided into an anterior and a posterior lobe, the former developed on the inner side into a very stout long spine, widely curved, directed quite across the broad tarsal sheath, its aculeate apex curving forward.

*Hab.* Mexico, Teapa (*H. H. Smith*).

## Group **PHIDIPPEÆ.**

First pair of legs with the three pairs of spines beneath the tibiæ situated in the apical half of the segment at any rate, often in the apical third or even fourth (this is the case in both sexes, but the spines on the *inner* side of tibia i. are those which should be taken into consideration, those on the outer side being, as a rule, slightly wider apart). The females are distinguishable, with very few exceptions, by a deep rounded or ∧-shaped notch in the middle of the posterior margin of the vulval area.

The genera which have been included in this group may be distinguished by the following characters, though it is doubtful how far some of the distinctions will be found to be permanent:—

A. Carapace and abdomen more or less flattened.
  1. Tibia i. more or less, sometimes very much, enlarged. Tibia and protarsus iv. without spines.
    *a*. Maxillæ not dilate at the outer angle, nor truncate at the apex, but normally and evenly rounded. Tibia i. not fringed with hair beneath.
      *a'*. Tibia i. very dilate, very little longer than broad, chelate. Sternum not produced into a conical point behind. Spines beneath protarsus i. short . . . . . Cheliferoides, gen. nov.
      *b'*. Tibia i. not nearly so dilate, at least three times longer than broad, not chelate. Sternum produced into a conical point behind. Spines beneath protarsus i. very long . . . . Rudra, Peckh.
    *b*. Maxillæ dilate at the outer angle and squarely truncate at the apex. Tibia i. densely fringed with hair beneath . . . . Ashtabula, Peckh.
  2. Tibia i. not enlarged, five or six times longer than broad, parallel-sided. (Maxillæ dilate at the outer angle and squarely truncate at the apex.) . . . . . Anoka, Peckh.

B. Carapace and abdomen more or less convex.
  1. Posterior row of eyes scarcely wider than the anterior row. (Abdomen without any central dorsal triangular pale spot.)
    *a*. Legs i. and ii. in both sexes without fringes of hair on the sides or beneath . . . . . Metaphidippus, gen. nov.

*b*. Legs i. and ii. in both sexes with fringes of hair on the sides or beneath . . . . . PARAPHIDIPPUS, gen. nov.

2. Posterior row of eyes distinctly wider than the anterior.

*a*. Carapace uniformly rounded on the sides. Abdomen with a central dorsal triangular pale spot . . . . . PHIDIPPUS, C. L. Koch.

*b*. Carapace dilate laterally, in front of the small eyes. Abdomen without the characteristic central pale spot . . . . . PARNÆNUS, Peckh.

## CHELIFEROIDES, gen. nov.

Type *C. segmentatus*, sp. n. Guatemala.

Leg i. very incrassate, the tibia being almost as broad as long and, with the protarsus, forming a distinct chela, functional probably both in copulation and in the pursuit of prey. Cephalic quadrangle not longer than wide, but broader behind; the small eyes placed midway, or, if anything, slightly nearer the anterior laterals. Tibia and protarsus iv. without spines. Body flat, as in *Rudra*, and the maxillæ, as in this latter genus, rounded at the apex.

This spider very much resembles *Chirothecia*, Tacz., but differs in the length of the cephalic area (see Peckham's identification of that genus, which he regards as a "Homalattid").

### 1. **Cheliferoides segmentatus**, sp. n. (Tab. XXII. figg. 12, 12 *a–f*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4 millim.

For colour and structure, see Plate.

*Hab.* GUATEMALA (*Sarg*).

It is very difficult to place this species in its proper systematic position. If, as Peckham considers, *Chirothecia* is a "Homalattid" and *Rudra* a "Marptusid," *C. segmentatus* falls between the two, and removes any distinction which might have been supposed to exist between the groups. For the present it is placed in the Phidippeæ. One would suspect by its general appearance that this spider mimics one of the Pseudoscorpions.

## RUDRA.

*Rudra*, Peckham, Proc. Nat. Hist. Soc. Wisc. 1885, p. 76 (Dec.).

Type *R. geniculata*, Peckham. Guatemala.

Tibia and protarsus iv. without spines; femur i. with, at most, one spine at the apex in front. The spines beneath the protarsi of the first pair of legs long, the basal ones three-fourths as long as the segment. Coxæ i. at least two-thirds of a diameter apart at their base. Sternum twice as long as broad, oval-elongate, not much dilate behind, but with an abrupt contraction in the middle, forming a conical point. The cephalic area has a pencil of three or four stiff bristles on each side, below the small eyes.

The males of the two known species belonging to this genus have not yet been found, but the females may be distinguished as follows:—

*Females.*

*a*. Abdomen marked with black and yellow in very strong contrast, the black markings consisting of a marginal line, a central bar (the anterior half dilate and scalloped on the margins, narrowed in the posterior half, with two lateral branches forming a slender ⊥-shaped bar), and a transverse bar between this and the spinners. Vulval area circular, indented in the centre of the posterior margin, with two orifices in the anterior third of the area, four diameters apart, with two hypodermal ducts, extending to the posterior third, where they become convoluted . . . . . *geniculata*, Peckh.

*b*. Abdomen very like that of *R. geniculata* (sec. Peckham); but, according to his figure, the black markings on the abdomen are more scattered. Vulval area with a large transverse oval cavity anteriorly, the posterior margin slightly emarginate in the middle, with a small rounded cusp between the posterior margin of the cavity and the posterior margin of the vulval area . . . . . *polita*, Peckh.

### 1. **Rudra geniculata.** (Tab. XXII. figg. 13, 13 *a–e*, ♀.)

*Rudra geniculata*, Peckh. Proc. Nat. Hist. Soc. Wisc. 1885, p. 77, t. 2. figg. 9, 9 *a* (♀) (Dec.)[1]; Occas. Papers Nat. Hist. Soc. Wisc. ii. 2, p. 121, t. 12. figg. 3–3 *b* (♀) (Nov. 1894)[2].

Type, ♀, in coll. Peckham. Total length 5 millim.

*Hab.* GUATEMALA[1 2], Escuintla (*Sarg*).

### 2. **Rudra polita.** (Tab. XXII. fig. 14, ♀.)

*Rudra polita*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. ii. 2, p. 121, t. 12. figg. 4, 4 *a* (♀) (Nov. 1894)[1].

Type, ♀, in coll. Peckham. Total length 7 millim.

*Hab.* GUATEMALA[1].

Our figure of the vulva of this species is taken from Peckham's work.

## ANOKA.

*Anoka*, Peckham, P. Z. S. 1893, p. 701.

Type *Anoka vernalis*, Peckham. St. Vincent, Antilles.

The following characters are taken from *A. grenada*, ♂ (Guatemala):—Tibia and protarsus iv. with spines beneath, the former with a single small one towards the base on the outer side, and two at the apex; the latter with a single median spine on the inner side, and three at the apex beneath. The spines beneath the tibia and protarsus i. very short, scarcely longer than the diameter of the segment, those beneath the former situated on the anterior half of the segment. Coxæ i. rather closely situated at their base, about half a diameter apart. Sternum, in length, rather over twice its breadth, oval, gradually dilate behind. Leg i. long, tibia not incrassate.

The two Central-American forms may be recognized as follows:—

*Males.*

A. Mandibles much longer. Maxillæ much more dilate towards the apex, with the outer anterior angle slightly prolonged. Spine at the apex of the prolonged palpal bulb curving more circularly, not sinuously, across the tarsus. Abdomen more distinctly spotted . . . . . *grenada,* Peckh.

B. Mandibles much shorter. Maxillæ almost parallel-sided, with the outer anterior angle not prolonged. Spine at the apex of the palpal bulb directed in a straight or sinuous line across the tarsus. Abdomen with a uniform central reddish dorsal band, with also, however, 3–4 pairs of indistinct spots. *fimbriata,* sp. n.

### 1. **Anoka grenada.** (Tab. XXII. figg. 15, 15 *a–i*, ♂.)

*Ankoa grenada,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. ii. 2, p. 126, t. 12. figg. 8–8 *c* (♂) (Nov. 1894)[1]; op. cit. iii. 1, p. 6 (April 1896)[2].

Type, ♂, in coll. Peckham. Total length 5·5 millim.

*Hab.* GUATEMALA (*Sarg*).—COLOMBIA [1] [2].

### 2. **Anoka fimbriata,** sp. n. (Tab. XXII. figg. 16, 16 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length, exclusive of mandibles, 4 millim.

*Hab.* GUATEMALA (*Sarg*).

The characters distinguishing this from the last species are given in the Table; but one cannot be too cautious over those drawn from the mandibles and maxillæ, while it is perfectly possible, too, that the curvature of the palpal spine varies also. Both species have the white fringes on the mandibles. I should not be surprised to find that these two forms, together with *A. moneagua*, Peckh., from Jamaica, and *A. parallela*, Peckh., from Trinidad [Occas. Papers Nat. Hist. Soc. Wisc. ii. 2 (Nov. 1894)], were all referable to the same species.

## ASHTABULA.

*Ashtabula,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. ii. 2, p. 139 (Nov. 1894).

Type *Ashtabula zonura*, Peckham. Colombia.

The type-species of *Ashtabula* I do not know, but if I have correctly placed the following two forms in it, the genus is very similar to *Rudra* and *Cheliferoides*; they have the maxillæ, however, distinctly dilate, the outer apical angle being somewhat produced and squarely truncate, and the cephalic quadrangle of eyes is also longer in proportion than in *Rudra*. The genus is also closely allied to *Anoka*, but the tibiæ of the first pair of legs in the latter are not dilate. The two species which I refer to it may be distinguished as follows:—

*Males.*

*a.* Abdomen pale yellow, clothed with white hairs, having a central longitudinal dorsal, dark, deeply dentated band. Apical spine of palpal bulb very fine and short, quite inconspicuous. Tibial spine of palpus geniculate. Basal segment of mandible much excavate below the base of the fang, with a very long upper and under tooth, and a third smaller one. The fang itself with a large tooth or enlargement on the upperside near the basal half. Cephalic quadrangle occupying half the carapace . . . . . *dentata,* sp. n.

*b.* Abdomen black, the dorsal area entirely clothed with green iridescent scales and margined with a narrow band of white. Apical spine of palpal bulb stout, conspicuous, and slightly sinuous. Tibial spur of palpus slightly curved, not geniculate. Basal segment of mandible with a single short stout tooth on the upper and lower margin of the fang-groove. Cephalic quadrangle of eyes occupying less than half the carapace . . . . . *nigricans,* sp. n.

Note.—The female of *A. dentata* is unknown to me and that of *A. nigricans* is not adult; I cannot, therefore, give figures of the vulva of either.

### 1. **Ashtabula dentata,** sp. n. (Tab. XXIII. figg. 1, 1 *a–e*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4 millim.

For a description of the specific characters, see the Table.

*Hab.* Guatemala (*Sarg*).

This species, in general appearance, resembles *A. zonura*, Peckh., but the tibial spur of the palpus is differently formed, and the mandible also is evidently very dissimilar, Peckham not mentioning the long teeth on the basal segment, nor the enlargement above of the fang in the basal half.

### 2. **Ashtabula nigricans,** sp. n. (Tab. XXIII. figg. 2, 2 *a–e*, ♂; 3, ♀.)

Type, ♂, in coll. Godman & Salvin. Total length, ♂ 4·75, ♀ juv. 5·5 millim.

Coloration similar in both sexes. Carapace and abdomen black, the former clothed dorsally with a large area of green and copper iridescent scales, embracing the cephalic area, and extending over halfway to the posterior margin. Abdomen clothed over the entire dorsal area with iridescent scales, cinctured marginally with a narrow white band; ventral area black. Legs black-brown; protarsi and tarsi yellow; tibiæ iii. and iv. also yellow, with lateral brown bands. Femur of palpus brown; patella, tibia, and tarsus yellow.

♂. Leg i. much incrassate; tibia two and a half times longer than broad, with three pairs of short stout spines on each side in the apical third; protarsus i. as long as the tibia, with 2—1 stout spines beneath; tarsus more than half as long as the tibia.

♀. Leg i. incrassate; tibia one and a half times longer than broad, with three pairs of short spines in the apical third. In both sexes the anterior margin of the femur and the underside of the patella and tibia are thickly fringed with stout hairs. Tibia iv. with one or two spines on each side and two at the apex beneath; protarsus iv. with one or two spines at the sides and four at the apex beneath. Maxillæ dilate at the apex. Coxæ i. almost a diameter apart. Mandibles short and stout, with a single tooth above and below.

*Hab.* Mexico, Teapa (*H. H. Smith*); Guatemala (*Sarg*).

## METAPHIDIPPUS, gen. nov.

Type *M. mandibulatus*, sp. n., ♂. Costa Rica.

This genus includes those spiders referred by Peckham to *Dendryphantes*. It is very difficult to remove them structurally from *Paraphidippus*, and if they happened to be of the same size there would be still less inclination to do so. They are all smaller spiders, with either yellow bodies variegated with spots and slashes, or more or less clothed with metallic scales, copper, green, or pink. The only tangible difference one can find is that the first one or two pairs of legs are not clothed with hairs in either sex. The *protarsi* of the posterior legs are in most cases entirely devoid of spines, except at the apex.

### *Males.*

(Legs not fringed with hair beneath, but, as usual, clothed with scattered hairs throughout.)

I. Mandibles very elongate, more or less attenuate; basal segment often as long or longer than the carapace; the three mandibular teeth widely separate, the lower and larger one situated close to, about once or twice its length from, the base of the fang, the other two, usually more or less adjacent, situated close to the basal inner angle of the segment, where they meet the curved point of the elongate, usually more or less sinuous, fang.

A. Bulb of palpus with a straight or circularly curved spine at the apex, not situated on the side.

1. Fang of mandible very long, and widely sinuous, having a long spur near its base on the outer side, whose apex is slightly recurved . . *mandibulatus*, sp. n.

2. Fang of mandible simple, without spur at the base on the outer side.

$a^1$. The apical tooth of the mandible widely separate from the two smaller basal teeth.

$a^2$. The apical tooth not larger than either of the basal teeth . . *nitidus*, Peckh.

$b^2$. The apical tooth much larger than either of the basal teeth.

$a^3$. The basal teeth widely separate, three times the length of the middle one apart, which is much the largest of the two . . *tridentatus*, sp. n.

$b^3$. The basal teeth adjacent, not more than the length of one of them apart.

$a^4$. Upper apical angle of basal segment of mandible with a stout cusp or tooth.

$a^5$. Apical spine of palpal bulb straight, conical, sharp. Upper apical tooth of mandible sharp . . . . . *octonotatus*, sp. n.

$b^5$. Apical spine of palpal bulb circularly curved, starting from the outer side, curving downward and upward, its apex directed outward. Upper apical tooth of mandible truncate . . . . . *pernix*, sp. n.

*b*⁴. Upper apical angle of basal segment of mandible without any distinct cusp or tooth. Apical spine of palpal bulb short, stout, and slightly curved outward at the apex . . *dentiger*, sp. n.

*b*¹. The apical tooth of the mandibles much nearer to, not further than its own length from, the two basal teeth, these being adjacent.

* Tibia and patella of palpus each three times longer than broad; bulb not unusually dilate at the base, its apical spine long, slender, almost straight, directed obliquely forward . . . *longipalpus*, sp. n.

** Tibia and patella of palpus each not longer than broad; bulb much inflated, its apical spine short, stout, slightly curving outward . . . . . *globosus*, sp. n.

B. Bulb of palpus with a large spirally curved spine situated on the inner side of the apical portion.

(Apical tooth of basal segment of the mandible very far removed from the basal teeth; the segment itself strongly curved outward at its base.) . . . . . *maxillosus*, sp. n.

II. Mandibles shorter, not attenuate; basal segment much shorter than the carapace. Fang not nearly so long.

AA. The lower mandibular tooth sharp at the apex.

*a*. Spine of palpal bulb situated at the apex.

*aa*. Tibia of the first pair of legs with the 2—2—2 spines situated close together at the apex of the segment.

(Apical spine of palpal bulb short, slender, straight, its apex curving slightly inward. Tibial spur of palpus strongly curved at its apex.) . . . . . *apicalis*, sp. n.

*bb*. Tibia of the first pair of legs with the 2—2—2 spines spread over the apical half of the segment.

*a*¹. Apex of palpal bulb with a double spine, the inner one slightly longer than the outer. Tibial spur of palpus very short, deflected abruptly downward . . . . . *bispinosus*, sp. n.

*b*¹. Apex of palpal bulb with a broad lanceolate spine, the apex of which slightly curves outward. Tibial spur of palpus longer and more slender, directed forward . . . . . *lanceolatus*, sp. n.

*b*. Spine of palpal bulb spiraliform, situated on the inner side of the bulb*. (Upper tooth of mandible the largest, broad conical.) . . *levispinus*, sp. n.

BB. The lower mandibular tooth slightly dilate and obliquely truncate at the apex.

A. Spur of tibia of palpus simple, single-pointed, straight or curved downward.

*a*. Apical spine of bulb bifurcate.

*a*¹. Apical spine of bulb long, slender, with two equal and similar

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* *M. lætabilis*, Peckh., probably belongs to this group.

prongs, forming a little fork. Bulb not inflated, somewhat flattened in the basal region. Tibial spur of palpus longer, more slender, sinuous, but straight, not curved abruptly downward . . . . . *furcillatus*, sp. n.

*b*¹. Apical spine of bulb short, broad, flat, the inner prong of the fork the longest, the other often a mere barb-like cusp. Bulb much inflated in the basal region. Tibial spur of palpus shorter, stouter, falciform, abruptly curved downward at the apex . . . . . *furcatus*, sp. n.

*b*. Apical spine of bulb simple not bifurcate.

* Spots and bands on the carapace primrose-yellow. (Abdomen with a short anterior dorsal and a broad entire marginal band of yellow scales. Apical spine of bulb broad basally, abruptly narrowed, straight, filiform to the apex, the bulb itself somewhat broader.) . . . . . *flavolineatus*, sp. n.

** Spots and bands on the carapace white.

*aa*. Abdomen with a double row of four white cuneiform spots down the dorsal area. Apical spine of bulb broad throughout, lanceolate, the bulb itself narrower, elongate . *variegatus*, sp. n.

*bb*. Abdomen with iridescent scales, an unbroken white marginal band and three pairs of white spots in the basal half, two oblique spots on each side of the apex. Apical spine of bulb very broad, dilate, obliquely truncate at the apex, with a small cusp in the middle of the truncature, whose inner angle is produced into a point curving forward . . . . . *digitatus*, sp. n.

B. Spur of tibia of palpus bi-branchiate, with an equally developed upper and lower branch, the upper more slender and curved downward, sharp, the lower stouter, straight, truncate at the apex.

(Apical spine of bulb very broad, base dilate, deeply embedded in the apical portion of the bulb, apex geniculate, curving forward, minutely bifid at the extreme point.) . . . . . *bicuspidatus*, sp. n.

Note.—I do not know *M. centralis*, *M. lætabilis*, *M. felix*, and *M. hondurensis* (Peckh.), nor *M. capitatus* (Hentz), sufficiently well to enable me to include them in the Table.

## *Females.*

A. Posterior margin of vulval area not or only slightly emarginate, not deeply notched.

*a*. Abdomen with a broad black longitudinal band on each side of the dorsal area, but reaching neither the anterior margin nor the spinners.

(Vulva with a transverse irregular oval area anteriorly, with two indistinct orifices close together in the anterior middle of this area, connected with a curved line on each side.) . . . . . *nigropictus*, sp. n.

*b*. Abdomen without longitudinal black bands.
1. Abdomen with a central anterior dorsal transparent cruciform mark. Vulval area circular, the two orifices more adjacent . . . . . *pallidatus*, sp. n.
2. Abdomen with a variegated brown pattern on the dorsal area. Vulval area broad, transverse, triangular-oval, the two orifices more remote from each other . . . . . *expallidatus*, sp. n.

B. Posterior margin of vulval area more or less deeply notched.
i. Vulval area longitudinal-oval, with a pair of large adjacent longitudinal-oval concave discs anteriorly, and a much smaller pair of dark subepidermal discs lying between these and the posterior margin . *bicavatus*, sp. n.
ii. Vulval area without any large anterior oval concave discs.
$a^1$. Abdomen umber-brown, with numerous yellow or white elongate or cuneiform spots and bands.
$a^2$. Abdominal pattern consisting of a pair of elongate, parallel, pale, unbroken bars, not reaching the anterior margin; with two median lateral spots and three pairs of cuneiform spots posteriorly, forming chevrons, these spots being placed on four pairs of deep black spots. Notch on posterior margin of vulva Λ-shaped, often very deep . . . . . *bispinosus*.
$b^2$. Abdominal pattern consisting of six pairs of pale cuneiform dorsal spots and two pairs of anterior lateral spots, the first pair of dorsal spots reaching the anterior margin. Scarcely any trace of black spots. Notch on margin of vulva more semicircular . . . . . *variegatus*.
$b^1$. Abdomen either pale clay-yellow without metallic scales, or clothed with pink, copper, or green iridescent scales.
* Abdomen clothed with iridescent metallic scales.
1 *aa*. Carapace also clothed with pink, copper, or green iridescent scales; not much inflated laterally behind the posterior eyes.
*a**. Abdomen with four round jet-black spots on each side . *octonotatus*.
*b**. Abdomen without these black spots on each side.
2 *a*. Abdomen with a narrow white marginal encircling band, and also (in *M. apicalis*) with lateral white transverse oblique spots as well.
*a***. Vulval area longitudinal-oval, with the orifices situated one diameter apart in a transverse-oval depression . . . . . *cupreus*, sp. n.
*b***. Vulval area triangular, without transverse-oval depression, having a pair of orifices one and a half diameters apart in the posterior half. Abdomen with anterior marginal band and three white transverse oblique lateral marginal slashes on each side . *apicalis*.

2 *b*. Abdomen without any white marginal band or white spots. Vulval area broad, transverse, oval-triangular, abruptly narrowed anteriorly.

3 *a*. Vulval orifices closely adjacent, in the middle of the area . . . . . *ovatus*, sp. n.

3 *b*. Vulval orifices widely separate, six diameters apart, with a pair of dark longitudinal-oval discs lying between them . . . . . *iridescens*, sp. n.

1 *bb*. Carapace not clothed with iridescent scales, but with white or grey hairs; more distinctly inflated laterally behind the posterior eyes . . . . . *inflatus*, sp. n.

** Abdomen not clothed with iridescent scales.

*aa*. Carapace more distinctly inflated behind the posterior eyes.

1. Abdomen yellow, with two median lateral black bands, broken up into eight square spots. Vulva oval-triangular, with a pair of transverse orifices, one diameter apart, in the centre . . . . . *momus*, sp. n.

2. Abdomen yellow, with four black spots at the apex. Vulval area oval-triangular, with a pair of punctiform orifices, four diameters apart, connected with a spiraloid line on each side curving forward . . . . . *quadrinotatus*, sp. n.

*bb*. Carapace scarcely inflated behind the posterior eyes.

1. Abdomen yellow, with five pairs of dorsal linear-cuneiform brown spots, besides others. Vulval area elongate triangular . . . . . *ochraceus*, sp. n.

2. Abdomen dull red-brown, with four pairs of very indistinct pale chevrons, united on the median dorsal line. Vulval area short triangular-oval . . . . . *pallens*, sp. n.

Note.—I am not sufficiently well acquainted with the characters of *M. centralis*, *M. dubitabilis*, *M. hondurensis*, or *M. vegetus* (Peckh.) to enable me to insert them in the Table; they probably belong, however, to this group of species, and a figure of the vulva of each of the first three of these will be found on our Plates. *M. retiarius*, *M. nubilus*, and *M. capitatus* (Hentz), which also belong to this genus, are unknown to me.

## 1. **Metaphidippus mandibulatus,** sp. n. (Tab. XXIII. figg. 4, 4 *a–e*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

*Dried example.* Carapace deep purple-brown, the cephalic area clothed with green and white scales, having also a narrow marginal band of white scales. Abdomen brown, with a central longitudinal dorsal band of green iridescent scales and a double row of four spots of white scales, and a broken marginal band of the same, the two arms of the band not meeting in front; sides and ventral area brown, thinly clothed with fine ochreous hairs. Femora i. and ii., apex of patellæ i. and ii., tibia i., apex of protarsus i., and the apices of all the other segments of the legs ii., iii., and iv. (except the tarsi) brown, the rest of the legs yellow; the apices of the femora and the bases of the tibiæ and patellæ i. and ii. strongly, of iii. and iv. slightly, clothed with white scales. Sternum, maxillæ, and labium, the coxæ and trochanters of leg i., and the mandibles deep brown.

Eyes—cephalic quadrangle slightly wider behind; central posteriors slightly nearer to the lateral anteriors than to the lateral posteriors. Mandibles very long, the basal segment longer than the carapace, with a

stout curving tooth near the insertion of the fang, and two much smaller teeth within two of their own lengths of each other, close to the base of the segment, meeting the apical hook of the fang when the latter is closed. Fang very long and sinuous, as long as the basal segment, having a long slender spur on the upperside near the base, its apex curving forward and slightly outward. Palpal bulb rather broad, bilobate, with a slender curved apical spine; tarsus slightly excavate at the base opposite the tibial spur, which is short, broad, and a little curved downward. Tibia ii. with 2—2—2 spines beneath.

*Hab.* Costa Rica (*Rogers*).

### 2. **Metaphidippus nitidus.** (Tab. XXIII. figg. 5, ♂; 6, ♀.)

*Dendryphantes nitidus,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 53, t. 4. figg. 8, 8 *b*, 8 *c* (♀), 8 *a* (♂) (April 1896)[1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 6–8, ♀ 9–10 millim.

*Hab.* Guatemala[1].

### 3. **Metaphidippus tridentatus,** sp. n. (Tab. XXIII. figg. 7, 7 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4 millim.

*Dried example.* Carapace deep black-brown, clothed on the cephalic area with white and ochreous scales; with a broad lateral band of white scales extending from the anterior lateral eyes almost to the posterior margin; another broad band of white scales lies along the margin itself. The anterior central eyes are surrounded with ochreous scales; the clypeus is clothed with pure white scales. Abdomen with an elongate-oval chocolate-brown dorsal band, extending from the anterior margin to the spinners, its centre longitudinally clothed with a band of white scales; the entire margin encircled with a broad band of white scales; central ventral area chocolate-brown, devoid of scales, the space between this and the marginal band thinly clothed with white scales. Legs and palpi more or less clothed with white scales. Coxæ, femora, apex of patella, entire tibia, and apex of protarsus i. deep brown; femur ii. almost entirely brown; apex of femora iii. and iv. brown; the rest of the legs yellow. Sternum, maxillæ, labium, and mandibles deep brown.

Eyes—cephalic quadrangle slightly wider behind, with the lateral posteriors rather nearer the anterior laterals than to the posterior laterals. Mandibles very long, their basal segment two-thirds the length of the carapace, with a single large tooth near the insertion of the fang, curving forward, another shorter, straight, sharp tooth about midway, and a third very small tooth at the base of the inner margin. Fang very long, as long as the basal segment, sharply curved at the base, fairly straight, slightly sinuous and hooked at its apex, but without any spurs or cusps. Palpal bulb elongate, bilobate, with a short, sharply curved, black spine at its apex; tibial spur short and curving downward; tarsus only slightly excavate at the base, opposite the tibial spur. Tibia ii. with a pair of spines at the apex and two spines situated longitudinally beneath.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

### 4. **Metaphidippus octonotatus,** sp. n. (Tab. XXIII. figg. 8, 8 *a–c*, ♂; 9, 9 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4·5, ♀ 5 millim.

Colour similar in both sexes. Carapace dark red-brown; cephalic area black, clothed with white hairs and iridescent scales. Abdomen deep red-brown, clothed with iridescent scales, having an anterior marginal white band, broken up along the sides into three narrow oblique pale bands, and on each side of the dorsal area a broad black band broken up into four black square spots by three narrow transverse white bars. The coloration in the male is more distinct and vivid. Ventral area with a broad central dusky band. Legs yellow, i. and ii. darker brown; protarsi and tarsi yellow, iii. and iv. pale yellow, the apex of the femora, patella, and tibia being dusky brown. Vulva consisting of an oval area, broader behind,

slightly emarginate in the centre of the posterior margin, with a pair of dark, narrow, oblique, anteriorly convergent, slit-like orifices towards the anterior margin of the area. Patella and tibia of palpus short, subequal, not longer than broad; tibia with a short, stout, curved, blunt spur at the middle of the outer anterior margin. Bulb broad, simple, slightly bilobate anteriorly, with, at its apex, a short, stout, sharp, conical, black spur (or spine). Mandibles much developed, the basal segment very long, with a stout spur at its apex above and a large, long, curved tooth or spur further down on the lower side, and also two smaller sharp teeth close together, about a diameter of the anterior one apart, at the inner basal angle, to meet the point of the long, sinuous, slender fang (or apical segment).

*Hab.* GUATEMALA (*Sarg*).

The female of this species resembles *M. bicavatus* in coloration and general appearance, except that it has no white central or marginal band on the carapace, and the ventral area, instead of being pale unicolorous, has a broad black central band.

5. **Metaphidippus pernix,** sp. n. (*M. felix*, Tab. XXIII. figg. 10, 10*a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

Carapace red-brown, with a white band along the sides of the cephalic area beneath the lateral eyes, extending also on to the thorax. Abdomen ochreous-brown, clothed with iridescent scales; margin with a band of white hairs, unbroken in front and extending to the spinners. Legs red-brown, the tarsi and protarsi paler. Mandibles much developed, basal segment with a conspicuous cusp at the apex above, a very large tooth a little further down on the lower side, and two smaller teeth near the base; fang very long, abruptly curved at the base, sinuous and sharply curved at the apex. Bulb of palpus not projecting beyond the tibia; tibial spur very short, sharp, and slightly curved; apical spine forming an almost complete circle within the extreme apex of the tarsal sheath. The three spines on the inner side of tibia i. extend just beyond the middle of the segment.

*Hab.* GUATEMALA (*Sarg*).

6. **Metaphidippus dentiger,** sp. n. (Tab. XXIII. figg. 11, 11*a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

Carapace red-brown or black, with a marginal band of white hairs encircling the cephalic and thoracic area. Abdomen red-brown, with a white marginal band, clothed with iridescent scales; ventral area brown. Legs unicolorous brown, the tarsi paler. Tibia i. with paired spines extending just beyond the middle. Mandibles much developed, with the usual three teeth—a large one towards the apex and two others, very small and adjacent, towards the base; fang very long, sinuous. Palpal bulb broad and somewhat compressed; apical spine very short, stout, and curved; tibial spur a little longer than the segment, curved, stout, bluntly pointed.

*Hab.* GUATEMALA (*Sarg*).

7. **Metaphidippus longipalpus,** sp. n. (Tab. XXIII. figg. 12, 12*a*–*c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

Carapace brown or black, with iridescent scales (these, however, very much obliterated); with a broad marginal band of white hairs; no median lateral band. Abdomen brown, with a marginal white band, broken up into white spots behind, with a broad dark band on each side more or less broken up into four square dark spots by white transverse spots; the dorsal area densely clothed with iridescent green scales; ventral area brown. Legs dark brown, unicolorous, mottled with white hairs, with a conspicuous spot of white scales on the apex of the femur and base of tibiæ i. and ii. above. Palpus very long (as compared with that of others of the group); tibia and patella about equal in length, three or four times longer than broad;

bulb not basally produced over the tibia; apical spine slender, black, sharp, its point directed obliquely forward and inward; tibial spur short, sharp, curving slightly downward. Mandibles much developed, with a stout tooth (or cusp) on the lower side, about the middle, and a pair of small teeth more towards the base on the upperside; fang very long, sinuous and stout, a little rugulose at the base beneath.

*Hab.* PANAMA, Bugaba (*Champion*).

### 8. **Metaphidippus globosus,** sp. n. (Tab. XXIII. figg. 13, 13 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

Carapace red-brown, clothed with iridescent scales. Abdomen brown, with a marginal white band and a paler central dorsal band clothed with iridescent scales, and a pair of lateral dark bands broken by four white spots, but not divided into separate squares, as in some other species of the genus; ventral area brown. Legs i. brown, the femur darker; ii., iii., and iv. pale yellow, unicolorous. The paired spines beneath tibia i. reaching just beyond the middle of the segment. Mandibles somewhat enlarged, without any upper apical cusp, but with a large lower tooth near the apex and two smaller teeth nearer the base; fang stout, long, sinuous. Bulb of palpus enlarged, globose; apical spine short and slightly curved; tibial spur very large (as compared with that of other species of the genus), convex at the base, bluntly pointed and unguiculate at the apex.

*Hab.* COSTA RICA (*Sarg*).

### 9. **Metaphidippus maxillosus,** sp. n. (Tab. XXIII. figg. 14, 14 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5·5 millim.

Carapace black, clothed with scattered iridescent scales, without marginal bands, but with a white median lateral band extending from beneath the small eyes almost to the posterior margin. Abdomen brown, clothed with iridescent scales, with a white marginal unbroken band; ventral area brown, broadly margined with pale yellow. Legs i. unicolorous brown, the femur darker; ii., iii., and iv. yellow, apical two-thirds, apex of patella, and base of tibia suffused with dark brown; tibia i. spinose to the middle on the inner side and to just beyond it on the outer side. Carapace slightly inflate laterally, behind the posterior eyes. Sternum rather more than one-half longer than broad, not abruptly narrowed behind.

Mandibles very much developed, elongate, with a stout tooth on the outer (lower) side towards the apex; a much smaller one towards the base, with two very minute teeth opposite it, to receive the point of the very elongate, slender, sinuous fang; the basal segments sweep outward, curve upward, and are widely divergent at the apex. Spine of palpal bulb not at the apex, but springing from the inner side at the tip, forming a bold spiraliform coil, its apex directed downward; tibial spur long and slender.

*Hab.* MEXICO, Orizaba (*H. H. Smith*).

### 10. **Metaphidippus apicalis,** sp. n. (Tab. XXIII. figg. 15, 15 *a–d*, ♂; 16, 16 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4·5, ♀ 5 millim.

Carapace black, clothed with scattered iridescent scales, but without lateral white bands or a central cephalic white spot. Abdomen with a brown anterior dorsal spot, two lateral spots on each side, and an apical spot; margined and the spots outlined with white, the central dorsal area clothed with pink iridescent scales. Legs brown, more or less clothed with white hairs; tibia i. with the usual 2—2—2 spines, but these are situated at the extreme apex of the segments. Palpal bulb somewhat enlarged at the base, with a short black apical spine slightly curved inward at the tip; tibial spur short, slender, abruptly hooked at the tip.

Mandibles very much developed, with a large single lower tooth and two small upper ones; fang elongate, stout, with a very low conical protuberance beneath in the basal half, abruptly narrowed about the middle.

Female similar to the male, see Table and figures.

*Hab.* MEXICO, Teapa (*H. H. Smith*).

11. **Metaphidippus bispinosus,** sp. n. (Tab. XXIV. figg. 1, 1 *a*, *b*, ♂; 2, 2 *a*, *b*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 6 millim.

Coloration similar in both sexes, but not so well marked in the male. Carapace red-brown, clothed with white hairs, with a band of white hairs extending from beneath the lateral eyes and reaching the middle of the lateral area, midway between the central stria and the posterior margin. Abdomen yellow, with an anterior-lateral white band, broken in front and dilate behind; dorsally with a pair of elongate, slightly divergent, white bands, followed by an oval spot on each side, a sinuous spot dilate on the sides, and two ⌒-shaped white marks, the anterior the smaller, the branches of the posterior slightly dilate, just above the spinners (these white spots break a pair of black dorsal bands into four spots on each side); lateral area brown; ventral area pale, with a broad central longitudinal brown band, having a pair of narrow pale dotted lines in the middle.

Mandibles of the male variable in length, with a ridge on the inner upper margin, whence the inner side descends precipitately; the basal segment short, with two small teeth on the upper and one much larger broad and conical tooth on the lower side (sometimes the mandible is elongated, and these teeth are then more or less remote from the apex). Fang either shorter or longer according to the development of the basal segment. Maxillæ dilate at their apex; outer apical angle slightly produced. Palpal bulb elongate, bilobate, with two broad black apical spines, the outer one the smaller of the two; tibial spur very short, directed sharply downward. Vulva consisting of a more or less circular area, with a transverse anterior cavity, its posterior margin deeply sinuate, having on each side a black slash, possibly indicating an orifice; the posterior margin is so deeply but narrowly notched that the incision extends one-third through the vulval area.

*Hab.* GUATEMALA, Guatemala city (*Stoll*); PANAMA, Bugaba (*Champion*).

12. **Metaphidippus lanceolatus,** sp. n. (Tab. XXIV. figg. 3, 3 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

*Dried example.* Carapace red-brown, clothed on the cephalic area with white and olive-white scales, becoming golden towards the posterior margin; a broad band of transparent white (not opaque dead white) scales extends along the sides of the carapace from the lateral anterior eyes almost to the posterior margin, where it attenuates.

Abdomen with a large oval dull olive-brown area, covered with dull golden-brown scales and hairs, extending from the anterior margin to the spinners, having, on each side, close to the lateral white bands, four darker brown spots, with a group of white scales in close proximity, the posterior groups blending with the lateral bands on each side; the entire abdominal margin encircled with a broad band of white scales, followed at the sides and towards the lateral ventral area by yellowish-white hairs and scales; the central ventral area brown. Mandibles deep red-brown. Legs red-brown or yellow, annulated with groups of white scales. Femur i. entirely dark brown, the apices only of all the other segments of i., ii., iii., and iv. being brown, except the tarsi, which are entirely yellow. Palpi red-brown, clothed with dull white scales and hairs. Sternum pale red-brown. Coxæ of legs yellow-brown, clothed with pale hairs.

Cephalic quadrangle slightly wider behind; posterior central eyes a little nearer to the anterior laterals than the middle point between the laterals, anterior and posterior. Mandibles stout, elongate, divergent; the base compressed on the inner margin, bearing, about one-third from the insertion of the fang, two teeth, a larger anterior and a closely approximate posterior smaller tooth, with a much longer opposing tooth below; fang long, slightly sinuous; with a convex prominence about the centre of the inner margin. The outer spine of the third pair of tibia i. much nearer the base of the segment; tibia ii. with two apical spines beneath, and two situated longitudinally beneath the segment about the middle.

Palpal bulb comparatively narrow and elongate, with an apical lobe terminated by a short, broad, black lanceolate spine, which is concave in the middle; the base of the tarsus excavate on the outer side opposite the tibial spur, the inner side of the excavation being somewhat tuberculiform; tibial spur short, black, sharp, and curving downward.

*Hab.* MEXICO, Amula in Guerrero (*H. H. Smith*); GUATEMALA (*Sarg*).

### 13. **Metaphidippus levispinus,** sp. n. (Tab. XXIV. figg. 4, 4 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

Colour very similar to that of *M. lanceolatus*, but the abdominal band is not broken in front. Tibia i. with the three spines on the inner side close together, in rather less than the apical half, but not so near the apex as in *M. lanceolatus*. Mandibles very stout and clothed with white hairs on the basal half above. Palpal bulb small, but basally extending on the tibia, with a slender spiraloid spine on the inner apical side, its apex long, aculeate, directed forward and somewhat across the tarsus at its apex; tibial spur stout, nearly straight, sharp at the apex. Mandible very stout, convex above, with a stout tooth (or spur) on the upperside opposed by a pair of smaller ones on the lower side.

Protarsus iv. with lateral as well as apical spines.

*Hab.* Panama, Bugaba (*Champion*).

### 14. **Metaphidippus lætabilis.** (Tab. XXIV. figg. 5, 5 *a*, *b*, ♂.)

*Dendryphantes lætabilis*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 51, t. 4. figg. 6–6 *b* (♂) (April 1896) [1].

Type, ♂, in coll. Peckham. Total length 6 millim.

*Hab.* Panama [1].

### 15. **Metaphidippus dubitabilis.** (Tab. XXIV. fig. 6, ♀.)

*Dendryphantes dubitabilis*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 52, t. 4. figg. 7, 7 *a* (♀) (April 1896) [1].

Type, ♀, in coll. Peckham. Total length 5·9 millim.

*Hab.* Mexico, Tahia * (*Townsend* [1]).

Our figures of the vulva of this and the preceding species are taken from Peckham's work.

### 16. **Metaphidippus furcillatus,** sp. n. (Tab. XXIV. figg. 7, 7 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 8 millim.

Carapace red-brown, without marginal border, but with a straight band of white hairs, embracing the lateral eyes, and extending nearly to the base. Abdomen rich chocolate-brown (possibly clothed with iridescent scales), with a white marginal band, broken in front, extending to the spinners, in the apical fourth with two white points running inward, traces of the usual white spots; lateral area spotted with brown; ventral area pale yellow, slightly speckled with brown. Legs i. deep brown, ii., iii., and iv. yellow, unicolorous.

Carapace elongate, not inflated behind the posterior eyes laterally, compressed instead. Paired spines beneath tibia i. extending to the middle of the segment. Bulb of palpus broader in front; apical spine black, curved and furculate at the apex; tibial spur as long as the segment, sharp and sinuous. Mandibles not developed, normal.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 17. **Metaphidippus furcatus,** sp. n. (Tab. XXIV. figg. 8, 8 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4 millim.

Carapace red-brown, clothed with iridescent scales, without any marginal band, but with a median lateral band of white hairs on each side extending from beneath the small eyes almost to the posterior margin.

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* Probably Tapia, near Cordova, in the State of Vera Cruz.

Abdomen brown, with iridescent scales, margined with a band of white hairs, unbroken in front; ventral area brown, margined with pale yellow. Legs yellow-brown, i. and ii. darker, unicolorous, iii. and iv. more or less annulated with darker brown. Carapace not inflate posteriorly. Sternum one-half longer than broad, not abruptly narrowed behind. Spines beneath tibia i. extending to the middle on the inner side, and to just beyond the middle on the outer side.

Mandibles not much developed, with a broad tooth on the lower margin and two smaller ones opposite it on the upper margin. Bulb of palpus enlarged, globose, produced beyond the tibia; apical spine broad, black, bifurcate, the outer branch being the smaller; tibial spur short, stout, black, sharp and strongly curved.

*Hab.* Mexico, Orizaba (*H. H. Smith*).

### 18. **Metaphidippus flavolineatus,** sp. n. (Tab. XXIV. figg. 9, 9 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

*Dried example.* Carapace pale red-brown, with a large patch of primrose-yellow scales on the central anterior cephalic area, a broad lateral band, and an anterior marginal patch of similarly coloured scales on each side of the central anterior eyes; a patch of yellow scales also lies on the clypeus between the central anterior eyes. Abdomen rich olive-brown, with a short, narrow, central, dorsal anterior band and a broader entire marginal band of yellow scales reaching almost to the spinners; sides olive-brown; ventral area brown, margined on each side by a narrow band of pure white scales. Mandibles brown, without pale basal scales. Leg i. brown, the femur, tibia, and patella each with a broken band of yellow scales on the inner upper side; the other legs yellow. Palpi brown; femur and patella with some yellow scales above.

Eyes—cephalic area slightly wider behind; central posteriors scarcely further from the lateral posteriors than from the lateral anteriors. Mandibles stout; basal segment broad, with two small teeth, the lower very minute, on the upperside, and a single larger very broad tooth, slightly dilate at the apex, on the lower margin opposite the former, situated not far from the insertion of the fang; fang short and stout. Tibia ii. with two apical spines and 1—1 in the middle beneath. Palpal bulb bilobate, with a rather long slender apical spine; tibial spur short, sharp, and curving slightly downward.

*Hab.* Panama, Bugaba (*Champion*).

This small species is allied to both *M. lanceolatus* and *M. tridentatus*.

### 19. **Metaphidippus variegatus,** sp. n. (Tab. XXIV. figg. 10, 10 *a*, ♂; 11, 11 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3·5, ♀ 4 millim.

♂. *Dried example.* Carapace purple-black, clothed all over, except on the sides behind, with white and ochre-yellow scales. Abdomen rich red-brown, clothed with scattered white scales, with a double row of four white spots down the dorsal area; sides with white scales; ventral area black. Legs yellowish-brown, annulated with darker brown, and covered with scattered white scales. Mandibles brown, with white scales at the base.

♀. Similar to the male in colour, but the abdominal pattern is more distinct (especially noticeable when the specimens are immersed in alcohol); the ventral area is also, but more thinly, clothed with white scales, arranged in a double longitudinal band.

♂ ♀. Eyes as in other species of the group. Mandibles of the male very similar to those of *M. flavolineatus*, with a broad, slightly dilate, lower tooth. Palpal bulb elongate, with a broad lanceolate apical spine; tibial spur short, and curving downward, with another small cusp near its lower base. Vulva with notched posterior margin and concavity remote from it; see Plate. Tibia ii. with two apical spines and 1—1 beneath.

*Hab.* Mexico, Amula (*H. H. Smith*).

Closely allied to *M. flavolineatus*.

### 20. **Metaphidippus digitatus,** sp. n. (Tab. XXIV. figg. 12, 12 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4 millim.

Carapace red-brown, with two spots of white hairs behind the anterior eyes, a broad median lateral white band extending from beneath the anterior lateral eyes almost to the posterior margin, and a very narrow marginal line of white hairs. Abdomen dorsally red-brown, with iridescent scales and an unbroken marginal white band, with three pairs of white spots in the basal half, and two oblique white spots on each side at the apex; ventral area brown, broadly margined with pale yellow or dull white.

Legs i. yellow-brown, femur and apices of the other segments dark brown; ii., iii., and iv. yellow, annulated (like i.) with brown. Carapace scarcely dilate behind laterally; tibia i. spined on the inner side to the middle, and on the outer side to a little beyond this. Mandibles stout, not developed, with a larger tooth, dilate at its apex, on the lower margin, opposed by a small tooth on the upper. Bulb of palpus extending basally over the tibia; its apical spine black, very broad, obliquely truncate at the apex, with a small central cusp and a longer apical point directed forward, and slightly curving inward; tibial spur very short, sharp, and curving downward. Sternum rather over twice its breadth, not abruptly narrowed behind.

*Hab.* Mexico, Teapa (*H. H. Smith*); Guatemala (*Sarg*).

### 21. **Metaphidippus bicuspidatus,** sp. n. (Tab. XXIV. figg. 13, 13 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 3 millim.

Colour and general structure similar to that of *M. digitatus*. Bulb of palpus extended basally over the tibia, deeply indentate at the apex, where the apical lobe is inserted; apical spine very broad, somewhat geniculate, its apex bifid (or bicuspidate) and directed forward; tibial spur deeply bicuspidate, forming two branches, the lower broader and straight, the upper more slender and curving downward. Mandibles as in *M. digitatus*.

*Hab.* Guatemala (*Sarg*).

### 22. **Metaphidippus centralis.** (Tab. XXIV. figg. 14, 14 *a*, ♂; 15, ♀.)

*Dendryphantes centralis,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 49, t. 4. figg. 5, 5 *a* (♀), 5 *b*, *c* (♂) (April 1896) [1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 3·5, ♀ 5 millim.

*Hab.* Panama [1].

Our figures are taken from Peckham's work.

### 23. **Metaphidippus nigropictus,** sp. n. (Tab. XXIV. figg. 16, 16 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

Carapace dark red-brown, with iridescent green scales; cephalic area almost black, more or less clothed with grey hairs. Abdomen pale yellow, clothed with white hairs and with green iridescent scales, with a broad black longitudinal band on each side, not reaching either the anterior margin or the spinners; ventral area and sides pale yellow. Legs dark yellow-brown, i. and ii. darker. General structure as in other species of the group. Vulva consisting of a large, transverse-oval, shallow cavity not reaching the posterior margin, which is slightly emarginate in the centre; in the cavity is situated an orifice on each side of the middle, connected with a semicircular dark line.

*Hab.* Mexico, Teapa (*H. H. Smith*).

### 24. **Metaphidippus pallidatus,** sp. n. (Tab. XXIV. figg. 17, 17 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

Colour entirely pale yellow; carapace rather darker, red-brown, clothed with white hairs; abdomen also clothed with white hairs, having an anterior, central, dorsal, cruciform, transparent mark. General structure as in other species of the group. Vulva consisting of a circular area, its posterior margin only very slightly emarginate, with a large circular horseshoe-shaped depression or concavity in front, open behind, bounded by two deep black outlines (see Plate).

*Hab.* Guatemala (*Sarg*).

### 25. **Metaphidippus expallidatus,** sp. n. (Tab. XXIV. figg. 18, 18 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 3·5 millim.

Carapace red-brown, clothed with white hairs, with a pair of indistinct dusky spots in the centre of the cephalic area. Legs yellow; femur, patella, and tibia of i. and ii. with a dusky annulus at the apex. Abdomen pale yellow, with a brown variegated pattern on the dorsal area (see Plate). Ventral area with a broad sooty-black central band. General structure as in other species of the group. Vulva consisting of a broad triangular-oval area, slightly emarginate behind, not notched, with, anteriorly, two curved black lines forming the boundaries of a concavity, the two orifices at the posterior end of the lines being wide apart, four diameters of an orifice.

*Hab.* Panama, Bugaba (*Champion*).

### 26. **Metaphidippus bicavatus,** sp. n. (Tab. XXIV. figg. 19, 19 *a–d*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

Carapace deep red-brown, clothed with iridescent scales, with a central posterior band and a posterior marginal band of white hairs. Abdomen pale yellow, clothed with iridescent scales, having an anterior marginal white band, which extends along each side, dilate at the end, forming a spot about the middle of the lateral area, followed by a larger and a smaller white spot; on each side of the dorsal area lies a broad black band, broken up by three white spots into four black oblong patches; ventral area pale. Legs orange, i. and ii. dark brown, slightly darkened at the apex of each segment; in iii. and iv. these points are much darker by contrast with the paler legs. Vulva consisting of a large broad-oval area, deeply notched behind, in the middle of the posterior margin, with a pair of large, adjacent, shallow, oval cavities lying longitudinally with a narrow septum between, and a pair of dark spots between them and the posterior margin. Tibia i. with 2—2—2 spines beneath, those on the inner side being closer together and situated in the apical half, those on the outer side more widely separate. Protarsus iv. with three subapical spines at its apex beneath, besides a lateral one on each side at the apex and a lateral spine about the middle of the outer side.

*Hab.* Panama, Bugaba (*Champion*).

### 27. **Metaphidippus cupreus,** sp. n. (Tab. XXIV. figg. 20, 20 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

Carapace red-brown, clothed with coppery-pink iridescent scales. Abdomen red-brown, above entirely clothed with coppery-pink iridescent scales, having a narrow white marginal band entirely encircling it; sides brown-mottled; ventral area brown, bounded on each side by a narrow white dotted line (or line of dots). Vulva very distinct in form, consisting of an oval area, its posterior margin deeply notched, having a pair of deep cavities anteriorly. Legs i. brown, ii., iii., and iv. white; apex of femora, the patella, the sides of the tibiæ, and almost the whole of the protarsus, brown.

*Hab.* Panama, Bugaba (*Champion*).

28. **Metaphidippus ovatus,** sp. n. (Tab. XXV. figg. 1, 1 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6·5 millim.

Carapace deep brown-black, clothed with iridescent violet scales. Abdomen dull yellow, entirely clothed with green, pink, and violet iridescent scales. Legs unicolorous red-brown. Ventral area of abdomen pale, with a longitudinal central dusky band. General structure as in *M. quadrinotatus*. Vulva with a variable ⋀-shaped notch in the centre of the posterior margin.

*Hab.* Guatemala (*Sarg*).

29. **Metaphidippus iridescens,** sp. n. (Tab. XXV. figg. 2, 2 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

Carapace red-brown, with a paler area behind the posterior eyes, clothed with green metallic scales. Abdomen entirely clothed with pink and green metallic scales; ventral area pale, with a dusky central band. Legs unicolorous red-brown. General structure as in *M. quadrinotatus*. Vulva with a semicircular notch in the centre of the posterior margin (see Plate).

*Hab.* Panama, Chiriqui (*Champion*).

30. **Metaphidippus inflatus,** sp. n. (Tab. XXV. figg. 3, 3 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6·5 millim.

Carapace red-brown, entirely clothed with white hairs, much inflated behind the posterior eyes. Abdomen dull white, with pink and green metallic scales; ventral area with a longitudinal central dusky band. Legs yellow, i. and ii. more or less suffused with brown, iii. and iv. dusky at the apex of the patellæ, tibiæ, and protarsi. General structure as in *M. quadrinotatus*. Vulva with a deep triangular notch in the middle of the posterior margin (see Plate).

*Hab.* Guatemala (*Sarg*).

31. **Metaphidippus momus,** sp. n. (Tab. XXV. figg. 4, 4 *a–c*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

Carapace red-brown. Abdomen yellow, with two black bands broken up into eight square spots; ventral area with a central dusky band. Legs i. and ii. red-brown, iii. and iv. yellow with dusky annulations. General structure similar to that of others of the group, the carapace being more enlarged behind the posterior eyes, as in *M. inflatus*. Vulva consisting of a rounded-triangular area, deeply notched in the middle of the posterior margin, with a pair of transverse cavities, one diameter apart, in the middle of the vulval area.

*Hab.* Guatemala (*Sarg*); Panama, Bugaba (*Champion*).

32. **Metaphidippus quadrinotatus,** sp. n. (Tab. XXV. figg. 5, 5 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

Carapace dull yellow-brown; cephalic area darker and with a pale broad transverse area behind the posterior eyes. Abdomen dull yellow-white, with white and brown hairs intermingled, with a faint anterior, dorsal, central, longitudinal, dusky, wedge-shaped band, and four black spots at the apex; ventral area dull white. Legs dull yellow-white. Tibia iv. with one median and two apical spines beneath; protarsus iv. with one median externo-lateral and four apical spines beneath. Ocular quadrangle much broader than long, wider behind; small eyes nearer the anterior laterals. Carapace inflated laterally behind the cephalic region. Vulva deeply emarginate in the centre of the posterior margin (see Plate).

*Hab.* Costa Rica (*Sarg*); Panama, Bugaba (*Champion*).

### 33. **Metaphidippus ochraceus,** sp. n. (Tab. XXV. figg. 6, 6 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

Carapace red-brown, clothed with scattered white hairs. Abdomen clay-yellow-white, with a pale central band, ill-defined by a series of indistinct brown spots; lateral area spotted with brown: ventral area pale, with three very faint brown longitudinal central bands. Legs unicolorous yellow; tibia iv. with a dusky black spot on the inner side at the apex. General structure as in *M. quadrinotatus*, but there is no median spine beneath tibia and protarsus iv. Vulva with a short square notch in the middle of the posterior margin (see Plate).

*Hab.* GUATEMALA (*Sarg*).

### 34. **Metaphidippus pallens,** sp. n. (Tab. XXV. figg. 7, 7 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

In the single specimen received the carapace, abdomen, and legs are almost entirely deprived of pubescence and hairs, but the vulva is of a very distinct form, consisting of a large circular-oval area deeply notched in the middle of the posterior margin, having near the anterior margin a very shallow transverse-oval cavity with a broad central piece, very narrow in front, dilate and then abruptly narrowed behind, where on each side is a dark orifice. General structure as in other species of the group.

*Hab.* GUATEMALA (*Sarg*).

### 35. **Metaphidippus hondurensis.** (Tab. XXV. fig. 8, ♀.)

*Dendryphantes hondurensis,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 48, t. 4. figg. 4, 4 *a* (♀) (April 1896) [1].

Type ♀, androtype ♂, in coll. Peckham. Total length, ♀ 5, ♂ 4·5 millim.

*Hab.* BRITISH HONDURAS [1]; GUATEMALA [1].

Our figure of the vulva is taken from Peckham's work.

### 36. **Metaphidippus retiarius.**

*Attus retiarius,* Hentz, Spid. U.S., ed. by Burgess, p. 161, t. 17. fig. 11 (♀) [1].
*Dendryphantes retarius,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 284 [2].

*Hab.* NORTH AMERICA [1], Lower California, Sierra San Lazaro [2].—MEXICO, Tepic [2].

### 37. **Metaphidippus nubilus.**

*Attus nubilus,* Hentz, Spid. U.S., ed. by Burgess, p. 61, t. 8. fig. 15, t. 18. fig. 27 (♀) [1].
*Dendryphantes nubilus,* Banks, Prof. Calif. Acad. Sci. (3) i. p. 284 [2].

*Hab.* NORTH AMERICA, Alabama [1].—MEXICO, Tepic [2].

### 38. **Metaphidippus capitatus.** (Tab. XXV. figg. 9, 9 *a* ♂; 10, 10 *a*, *b*, ♀).

*Attus capitatus,* Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 200 (1845) [1]; Spid. U.S., ed. by Burgess, p. 51, t. 7. fig. 15 (1875) [2].
*Dendryphantes capitatus,* Peckh. Trans. Wisc. Acad. Sci. vii. p. 36, t. 1. figg. 25 (♂), 25 *a*, 25 *b* (♀), t. 3. figg. 25 (♂), 25 *a* (♀) [3] (Sept. 1888).

*Attus parvus*, Hentz, loc. cit. p. 358 [4]; Spid. U.S., ed. by Burgess, p. 62, t. 8. fig. 17 [5].
*Attus æstivalis*, Peckh. Descr. Att. U.S. p. 2, t. 1. fig. 2 (1883) [6].

*Hab.* North America [1 3].—Mexico [3].

I do not know this species, but we have given copies of Peckham's figures. The synonyms, too, are on his authority.

### 39. **Metaphidippus felix.**

*Dendryphantes felix*, Peckh. Trans. Wisc. Acad. Sci. xiii. p. 313, t. 27. figg. 6, 6 *a* (♂) (1901) [1].

Type, ♂, in coll. Peckham. Total length 6·5 millim.

*Hab.* Mexico, San Rafael (*Townsend* [1]).

### 40. **Metaphidippus vegetus.**

*Dendryphantes vegetus*, Peckh. Trans. Wisc. Acad. Sci. xiii. p. 323, t. 28. figg. 7, 7 *a* (♀) (1901) [1].

Type, ♀, in coll. Peckham. Total length 5 millim.

*Hab.* Mexico, San Rafael (*Townsend* [1]).

## PARAPHIDIPPUS, gen. nov.

Type *P. laniipes*, sp. n., ♂. Mexico.

This genus, which, if not absolutely distinct, is at any rate convenient for separating into groups the great number of species allied to *Phidippus*, may be distinguished from the latter by the fact that the eyes of the posterior row are not or scarcely wider than those of the anterior row, and the small eyes are a little further away from the lateral anteriors. The abdominal pattern, too, is characteristic, being without the triangular central pale spot, and the mandibles in the male are usually more highly developed, though otherwise there is no structural difference between the two.

### *Males.*

(Mandibles very stout, enlarged, with the lower tooth, or in *P. chrysis* the upper one, much elongated. Legs i. fringed with hair beneath, and to a lesser extent legs ii.)

i. Lower tooth of mandibles always the largest.

*a*. Fang of mandible less robust, less sinuous, and not or scarcely constricted in the middle, either quite simple or with a single prominence in the centre of the inner margin. Legs i. longer and more slender; tibia i. at least one-third longer than the patella and with the protarsus much less densely clothed with fringing black hairs. Palpal spine slender and almost straight.

*a'*. Fang of mandible with a single prominence at the middle of the inner margin. Legs i. clothed beneath with a dense fringe of

short hairs curling over at the tip. Abdomen with an unbroken marginal white band, and a central longitudinal dorsal band of iridescent scales, flanked by a brown band; no white spots. Apical spine of palpus uniformly stout, not aculeate at the tip . *laniipes*, sp. n.

*b'*. Fang of mandible without any prominence, or with only a very small one, at the middle of the inner margin. Legs i. clothed beneath with a dense fringe of short straight hairs, not curling over at the tip. Abdomen with a broken white or orange marginal band; the whole dorsal area clothed with iridescent scales and with five pairs of white spots, the second pair longitudinal and the fourth transverse. Apical spine of palpus aculeate at the apex . . . . . *inermis*, sp. n.

*b*. Fang of mandible very stout, sinuous, or constricted in the middle, with two conspicuous cusps at the middle of the inner margin. Legs i. shorter and stouter in proportion; tibia i. not more than one-fourth longer than the patella, densely clothed on all sides, but especially beneath, with long black hairs. Palpal spine slender, but curved at the apex. Abdomen as in *P. inermis* . . . . . *funebris*, Banks.

ii. Upper tooth of mandibles the largest, forming the apex of a large compressed apophysis, when viewed from in front.

(Abdomen as in *P. inermis*; legs i. fringed beneath with straight, short, black hairs.) . . . . . *chrysis*, Walck.

Note.—The following species are unknown to me and cannot be inserted in the Table:—*P. luteus* (Peckh.), *P. trimaculatus* and *P. limbatus* (Banks), and *P. militaris* (Hentz), though they probably belong to *Paraphidippus*.

## *Females.*

A. Body entirely dark brown or black, with a few apical marginal and sometimes small dorsal white spots . . . . . { *nigropilosus*, Banks. *funebris*.

B. Body not dark brown or black, but clothed with either a mottled pattern of white, yellow, and brown hairs and scales, or with green, pink, and copper-coloured metallic iridescent scales.

i. Ventral area with a broad longitudinal brown or black central band.

*a*. Carapace and abdomen clothed with green, pink, and copper-coloured iridescent scales on the dorsal area, and with an anterior white or orange marginal band, a central larger marginal white or orange spot, and a small one nearer the apex; dorsal area of the abdomen with four pairs of small white spots, sometimes conspicuously set on square or rounded black spots . . . . . *disjunctus*, Banks.

*b*. Carapace and abdomen entirely devoid of iridescent scales, but clothed with mottled white and brown hairs. The whole body clothed with hoary-white hairs. Abdomen with three pairs of obliquely longitudinal white spots, the first pair often confluent, in the middle of the dorsal area, and two ⩘-shaped apical bars; an

anterior marginal white band, and a large white marginal spot, just behind the middle . . . . . *marmoratus*, sp. n.

ii. Ventral area with a central band of thinly clustered ochre-yellow scale-like hairs. Abdomen more or less as in *P. disjunctus*, with marginal white or orange band more or less broken up, or entirely unbroken; clothed with coppery metallic scales, having pink and green refleetions . . . . . *chrysis*.

Note.—*P. multicolor* and *P. militaris* (Hentz), *P. fartilis* and *P. mexicanus* (Peckh.), and *P. tricolor* and *P. aureus* (C. L. Koch) are unknown to me, so that they cannot be included in the Table. *P. mexicanus* is stated by Peckham to be identical with *P. asinarius* (C. L. Koch), and it is therefore probably closely allied to *P. marmoratus*.

### 1. **Paraphidippus laniipes,** sp. n. (Tab. XXV. figg. 11, 11 *a–e*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 12 millim.

Carapace clothed with iridescent scales, with a band of white extending from behind the lateral anterior eyes nearly to the posterior margin. Abdomen iridescent, encircled with a broad uninterrupted white band; no dorsal white spots present. Legs unicolorous brown, the first and second pairs hairy beneath, their femora, patellæ, tibiæ, protarsi, and tarsi clothed with a dense fringe of woolly curly hairs, curving upwards. Mandible as in *P. inermis*, but with a less elongated apical cusp, lower or upper. The fang has a central cusp, as in some varieties of *P. inermis*. The palpal bulb is very similar also, but the apical spine is longer and more slender, and very similar to that of *P. chrysis*.

*Hab.* Mexico, Jalisco (*Godman*).

### 2. **Paraphidippus inermis,** sp. n. (Tab. XXV. figg. 12, 12 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 8 millim.

Similar to *P. chrysis* in coloration, but differing from it in the great development of the lower mandibular tooth and of the apical mandibular cusps. From *P. funebris*, which also has a greatly developed lower mandibular tooth, it may be known by the non-bicuspidate inner margin of the fang. Varieties occur in which the apical cusps are but little developed.

*Hab.* Mexico, Omilteme, Cuernavaca, Atoyac, Orizaba (*H. H. Smith*); Costa Rica (*Sarg*).

### 3. **Paraphidippus funebris.** (Tab. XXV. figg. 13, 13 *a–h*, ♂; 14, 14 *a*, ♀.)

*Phidippus funebris,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 280, t. 17. fig. 22 (♂ ♀)[1].

Type ♂, gynetype ♀, in coll. Calif. Acad. Sciences, San Francisco. Total length, ♂ 10·5, ♀ 13·5 millim.

♂. *Dried specimen.* Carapace deep mahogany-brown, the cephalic area clothed with green scales and black hairs, having a narrow band of white scales extending from between the lateral eyes almost to the posterior margin, convergent behind. Abdomen entirely clothed over the dorsal area with brilliant green (or coppery) metallic scales; the encircling white band is broken up into a few elongate spots; the dorsal area has four pairs of white spots, the first two elongate, the second pair transverse. Mandibles red-brown, often with a slight green reflection. Legs black or red-brown, clothed with black and white hairs and also with numerous white scales, on the underside with hoary-white hairs; tibia and protarsus i. fringed with a very dense clothing of brown hairs; tarsi iii. and iv. paler; patella and tarsus i. clothed with white hairs beneath, and all the tarsi with a few conspicuous white scales at the base above. Tarsus of palpus pale, or white, at the apex. The coloration, of course, varies also, but not very much.

♀. Deep brown or black, with brown hairs. Abdomen with the two apical marginal spots only pure white

or brilliant orange; the carapace and abdomen almost entirely without iridescent scales. Tibia i. with a thick clothing of dark hairs below. Protarsus iv. spined towards the base.

*Hab.* Mexico, Tepic (*fide Banks* [1]), Atoyac in Vera Cruz (*H. H. Smith*); Guatemala (*Sarg*); Costa Rica (*Rogers*).

Whether the females before me really belong to the species which Banks has called *P. funebris* I cannot say. It is quite possible, however, that black varieties of *P. chrysis* occur, though the almost complete absence of metallic scales in these examples renders it difficult to believe that we have an instance of such variation.

### 4. **Paraphidippus chrysis.** (Tab. XXVI. figg. 1, 1 *a–h*, ♂; 2, 2 *a–f*, ♀.)

*Attus chrysis*, Walck. Tabl. p. 25 (1805) [1]; Ins. Apt. i. p. 454 (1837) [2], and iv. Suppl. p. 422 [3].

*Philæus chrysis*, Peckh. Trans. Wisc. Acad. Sci. vii. p. 30, t. 1. fig. 20 (♀), t. 2. figg. 20 (♂), t. 3. fig. 20 *a* (♀) (1888) [4].

*Plexippus orichalceus*, C. L. Koch, Die Arachn. xiii. p. 113, fig. 1174 (♀) [5].

*Phidippus orichalceus*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, pp. 7, 13, 33, t. 2. figg. 8 (♂), 8 *a* (♀), t. 3. fig. 7 (♂) (1896) [6].

Examples in coll. Godman & Salvin. Total length, ♂ 7–10, ♀ 8–12 millim.

♂. *Dried specimen.* Carapace black, with dull green iridescence on the cephalic area, having a narrow band of pure white scales on each side, extending from behind the anterior lateral eyes, slightly converging behind the cephalic region and extending almost to the posterior margin, attenuate at both extremities. Abdomen rich red-brown above, the central area being clothed with green, golden, and pink scales; an almost continuous narrow band of white scales encircles the margin, broken, however, at the spinners, forming two small spots on each side; the dorsal area has a row of three small spots of white scales on each side, the last pair being elongate and transverse. Mandibles black, with a dull green reflection. Legs black, with a dull purple reflection, clothed entirely with black hairs, but with a few white hairs at the base of patella i. and on the dorsal area of femora ii., iii., and iv.; protarsi and tarsi ii. and iii. and tarsi iv. yellow; tibia i. clothed with black hairs beneath, the hairs not dense nor forming a fringe on each side. Underside of the body deep dull black-brown, clothed with olive-brown hairs; ventral area olive-brown. Palpi not white at the extreme apex.

The coloration is somewhat variable; the legs may be red-brown, the encircling abdominal band may be quite continuous and not broken at the apex, while the apical pair of spots may also be transverse, forming two pairs of transverse elongate spots.

♀. *Dried specimen.* Coloration exceedingly variable:—

1. Carapace with green iridescent scales on the cephalic area extending to the base; sides clothed with ochreous-white scales. Abdomen entirely clothed above with emerald-green and coppery scales, or entirely green or coppery, or coppery and green with pink reflections; on the anterior third runs a marginal band of ochreous-white scales, followed by a large spot and two smaller spots, often connected, the posterior one continued over the spinners in the form of a transverse elongation; the dorsal area presents three pairs of ochreous-white (or almost pure white) spots, the posterior pair tending to be transverse, each of these spots having a bare patch on either side, appearing to be black in contrast; ventral area brown, with numerous scattered ochre-white scales and a median band of the same. Legs, palpi, and mandibles red-brown, clothed with long ochre-yellow hairs; tibiæ i., iii., and iv. usually more or less black at their apex.
2. Precisely similar to the last, but with orange marginal band and spots.
3. Similar to both the above, but with a broad unbroken orange band extending from the anterior margin of the abdomen to the spinners; the dorsal spots also orange.

Many intermediate varieties of these also occur.

*Hab.* North America, South Carolina [2], Georgia [6]. — Mexico, Atoyac, Amula, Omilteme, Chilpancingo (*H. H. Smith*); Guatemala [4], Coban (*Sarg*); Costa Rica (*Rogers*).—South America; Antilles, San Domingo [1].

This very abundant species is in all probability the *Attus chrysis* of Walckenaer. It is very likely also identical with *Plexippus aureus* and *P. seladonicus*, C. L. Koch, and *Attus iris*, Walck. (Ins. Apt. i. p. 455); the type of the latter is figured in Abbot's Georgian Spiders (fig. 415).

### 5. **Paraphidippus disjunctus.** (Tab. XXVI. figg. 3, 3 *a–c*, ♀.)

*Phidippus disjunctus*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 281, t. 17. fig. 21 (♀) [1].

Type, ♀, in coll. Calif. Acad. Sciences, San Francisco. Total length 13·5 millim.

Carapace black, clothed with golden-brown pubescence, becoming intermingled with white laterally, but without any definite white bands. Abdomen dorsally clothed almost entirely with pink and green iridescent scales, becoming golden-brown in certain lights; the dorsal area with four large brown or black spots, which are devoid of scales on each side, and a central iridescent dorsal band, having five small white spots on each side, the apical ones becoming more transverse; anteriorly margined with white and with a larger and a smaller white spot on each side; sides clothed with grey scales; ventral area with a broad dark central band. Legs red-brown, clothed with grey-white scales and long white hairs; the apex of the patella and tibia of all four pairs is black; the femur, patella, and tibia i. with a lower fringe of curling black hairs, those beneath the protarsi white. Eyes and general structure as in other species of the genus. For the vulva, see the Plate.

*Hab.* Mexico, Tepic (*fide Banks* [1]), Teapa (*H. H. Smith*).

Distinguishable from *P. chrysis* by the broad black band down the centre of the ventral area, and from *P. marmoratus* by the metallic scales on the carapace and abdomen.

### 6. **Paraphidippus marmoratus,** sp. n. (Tab. XXVI. figg. 4, 4 *a–d*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8–13 millim.

Carapace red-brown, clothed with hoary-white hairs, also with more scattered black hairs. Abdomen varying in colour from rich chocolate to pale brown, with a broad white band encircling the anterior marginal half of the dorsal area, followed by a large white spot and another at the spinners on each side, the latter often joined over the spinners dorsally with an oblique branch extending upward and forward; these spots are very variable in size, shape, and colour, being often primrose-yellow or orange; the central dorsal area bears three pairs of elongate spots, the anterior pair smaller and often coalescing with the second pair, while just above the spinners are two pairs of ⟋⟍-shaped pale white spots; all the dorsal spots are margined with darker brown than the ground-colour of the dorsal area; ventral area entirely clothed with white hairs and scales, blending laterally with the marginal band and spots, with a broad central brown band entirely devoid of white scales, the band varying in colour from pale brown to chocolate-black. Palpi pale yellow, clothed with white scales and fringed with long pure white hairs. Mandibles and legs red-brown, clothed with white scales above and hairs beneath, more dense under tibia i. and at its apex beneath mingled with black hairs, the apex of tibia i. also black; femora, patellæ, tibiæ, and protarsi iii. and iv. dark at the apex (more easily observed in specimens immersed in alcohol). Sternum and coxæ red-brown, not clothed with white hairs. Protarsus iv. with a spine on the outer side towards the base, but in some examples this is absent. The carapace and abdomen are entirely devoid of iridescent scales.

*Hab.* Costa Rica (*Rogers*).

This species comes near the spider I identify as *P. disjunctus*, Banks, but may be distinguished from it by the absence of metallic scales, the elongate form of the dorsal spots, and the ⋀-like shape of the apical spots; the latter, however, are very variable. I am unable to recognize any reliable difference in the form of the vulva.

### 7. **Paraphidippus fartilis.** (Tab. XXVI. fig. 5, ♀.)

*Philæus fartilis*, Peckh. Trans. Wisc. Acad. Sci. vii. p. 27, t. 2. fig. 17 (♀) (1888) [1].

Type, ♀, in coll. Peckham. Total length 10 millim.

*Hab.* Mexico [1].

This species is doubtless closely allied to *P. marmoratus*, but the vulva differs very much according to Peckham's figure, of which we give a copy.

### 8. **Paraphidippus luteus.**

*Philæus luteus*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 40 (♂) (April 1896) [1].

Type, ♂, in coll. Peckham. Total length 9 millim.

*Hab.* Honduras [1].

According to Peckham [1], this species is very closely allied to *P. chrysis* (Walck.), but is of lighter colour, while the first leg is shorter in proportion, and there is no ridge on the face of the falces as in *P. chrysis*.

### 9. **Paraphidippus trimaculatus.**

*Philæus trimaculatus*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 282, t. 17. fig. 18 (♂) [1].

Type, ♂, in coll. Calif. Acad. Sciences, San Francisco. Total length 5·2 millim.

*Hab.* Mexico, Tepic [1].

According to Banks [1], the mandibles of the male are unarmed, *i. e.* without teeth on the basal segment: if this be correct, the absence of teeth is quite characteristic of the species. The fang is short. This and the following species are unknown to me.

### 10. **Paraphidippus limbatus.**

*Philæus limbatus*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 282, t. 17. fig. 17 (♂) [1].

Type, ♂, in coll. Calif. Acad. Sciences, San Francisco. Total length 4·5 millim.

*Hab.* Mexico, Tepic [1].

### 11. **Paraphidippus multicolor.**

*Attus multicolor*, Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 202 (1845) [1]; Spid. U.S., ed. by Burgess, p. 53, t. 7. fig. 13 (♀) [2].

*Philæus multicolor*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 282 [3].

*Hab.* North America, Alabama [1 2].—Mexico, Tepic [3].

### 12. **Paraphidippus nigropilosus.**

*Phidippus nigropilosus,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 280, t. 17. fig. 20 (♀) [1].

Type, ♀, in coll. Calif. Acad. Sciences, San Francisco. Total length 12 millim.

*Hab.* Mexico, Tepic [1].

The description given is insufficient to enable one to gather what are the distinctive characters of this species.

### 13. **Paraphidippus militaris.** (Tab. XXVI. figg. 6, ♂; 7, ♀.)

*Attus militaris,* Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 201 (1845) [1]; Spid. U.S., ed. by Burgess, p. 52, t. 7. figg. 10, 11 [2].

*Philæus militaris,* Peckh. Trans. Wisc. Acad. Sci. vii. p. 28, t. 1. fig. 19 (♀), t. 2. fig. 19 (♂) (1888) [3].

*Eris aurigera,* C. L. Koch, Die Arachn. xiii. p. 189, fig. 1237 (♂) (1846) [4].

*Hab.* North America, Alabama [1].—Mexico [3].

The very large (comparatively) falciform palpal spine strongly curving towards the inner side, of which Peckham [3] gives a figure, should enable this species to be readily distinguished. The synonymy is given on his authority.

### 14. **Paraphidippus mexicanus.** (Tab. XXVI. fig. 8, ♀.)

*Philæus mexicanus,* Peckh. Trans. Wisc. Acad. Sci. vii. p. 28, t. 1. fig. 18, t. 2. fig. 18 (♀) (1888) [1].

Type, ♀, in coll. Peckham. Total length 10 millim.

*Hab.* Mexico [1].

I do not know this species, but it appears to be closely allied to those which are clothed with iridescent scales. Our figure of the vulva is copied from Peckham's work.

### 15. **Paraphidippus aureus.**

*Plexippus aureus,* C. L. Koch, Die Arachn. xiii. p. 114, fig. 1175 (♀) [1].

*Hab.* Mexico [1].

There is very little doubt that this species is closely allied to *P. chrysis*, but whether identical or not, it is now almost impossible to determine.

### 16. **Paraphidippus tricolor.**

*Plexippus tricolor,* C. L. Koch, Die Arachn. xiii. p. 116, fig. 1177 (♀) [1].

*Hab.* Mexico [1].

This species also is evidently very closely allied to *P. chrysis.*

## PHIDIPPUS.

*Phidippus*, C. L. Koch, Die Arachn. xiii. p. 125 (1846).

Type *P. variegatus*, C. L. Koch. North America.

*P. variegatus*, a species very closely allied to *P. albulatus*, described below, is typical of all those here referred to this genus, and has therefore been selected by me as the type. It is very difficult, by structure alone, to separate these spiders from those which I have included under *Paraphidippus*; but, for convenience, I have separated out under *Phidippus* all those in which the eyes of the posterior row are distinctly wider apart than those of the anterior row, the small eyes are not far distant from the anterior lateral eyes, and the abdomen usually bears a central white triangular spot formed by the confluence of two cuneiform closely adjacent spots. The spiders themselves are large, stout, and thickly clothed with hairs; and the carapace is uniformly rounded on the sides.

The species known to or identified by me may be distinguished as follows:—

### *Males.*

I. Mandibles with two distinct teeth or one bicuspid tooth on the upper side and another single tooth below.

* Legs i. and ii. clothed and fringed with long sulphur-yellow hairs; iii. and iv. with shorter and paler yellow or nearly white hairs.

*a*. Carapace tuberculate, bearing on the sides of the cephalic area a stout conical tubercle. Femur i. with a long thick pencil of black hairs, springing from the basal third of the dorsal ridge and curving over to the front. Carapace and abdomen black, with sulphur-yellow bands. Mandibles steel-blue, with yellow basal hairs. The spine at the apex of the palpal bulb very slender, sinuous, with a broad transverse basal portion . . . . . *tuberculatus*, sp. n.

*b*. Carapace not tuberculate; sides of cephalic part very widely rounded. Femur i. without pencil of black hairs. Carapace with wide white lateral bands. Abdomen light brown, with a posterior dorsal median longitudinal velvety-black band. Mandibles black, with white basal hairs above. The spine at the apex of the palpal bulb with broad base, very similar to that of *P. tuberculatus* . . . . . *arizonensis*, Peckh.

** Legs i. and ii. clothed with brown, black, or white, or partly black and partly white hairs; iii. and iv. similar, but modified.

*aa*. Carapace without a transverse sinuous pale band behind the cephalic area.

*a*. Carapace, legs, and abdomen black or purple-brown, variegated with pure white. Mandibles metallic green, with white basal hairs above.

1. Apical spine of palpal bulb broader and bifid at its apex. Tibial spur strongly curved forwards and downwards . . . *albulatus*, sp. n.
2. Apical spine of palpal bulb narrower, shorter, and aculeate at its apex. Tibial spur straight (see Peckham's figure). Legs i. and ii. with black hairs, except patella and protarsus, which are clothed with white hairs . . . . . *mexicanus*, Peckh.

*b*. Carapace, legs, and abdomen entirely brown, the latter with some indistinct groups of a few white hairs dorsally. Tarsus of palpus clothed with orange-yellow scales and yellow hairs above. Mandibles brown. Apical spine of palpal bulb broad and strongly curved, falciform at its apex . . . . . *brunneus*, sp. n.

*bb*. Carapace black, with a transverse sinuous white band behind the cephalic area. Legs rufous, barred with black; femur, tibia, and apex of protarsus i. clothed with long black hairs, the patella with a long brush of snow-white hairs. Mandibles blue, iridescent . *howardi*, Peckh.

II. Mandibles with two teeth only, one above and one below. Legs i. and ii. clothed with long black hairs. Mandibles green, with violet reflections. Spine at apex of the palpal bulb very short, sinuous, with a broad rounded basal portion . . . . . *bidentatus*, sp. n.

## *Females.*

A. Abdomen not unicolorous, but with an anterior marginal band, a central triangular spot, an obliquely curved line, and a smaller spot on each side towards the spinners.

I. Legs i. and ii. clothed with black or brown hairs, in addition to the grey pubescence.

*aa*. Carapace almost entirely black or purple-brown, clothed with grey pubescence.

*a*. Vulva notched in the middle of the posterior margin, with the anterior bilobate cavity narrow and more remote from the posterior margin. Palpi clothed with long black hairs.

(Mandibles metallic green, their base and the clypeus fringed with white hairs. Abdomen dull red, clothed with grey hairs, having a central dorsal posterior black band, an anterior white marginal band, and a central white dorsal spot.) . . . . . *carneus*, Peckh.

Vulva also notched in the middle of the posterior margin, but with a deep concavity nearer to the posterior margin, having a short, narrow, central, anterior, longitudinal carina. Palpi clothed with long silver-grey hairs.

(Mandibles metallic green, their base and the clypeus fringed with grey hairs. Abdomen deep purple-brown, with an anterior marginal band of silvery-grey hairs followed by two indistinct lateral pale spots; and also with a central dorsal triangular spot, followed on each side by a transverse spot and a smaller

spot nearer the spinners, and a posterior central dorsal longitudinal lanceolate band of metallic silver-grey scales.) . . . *foveolatus*, sp. n.

*bb*. Carapace orange-red, clothed with dull golden-grey pubescence.

(Mandibles orange-red-brown, their base and the clypeus clothed with scattered grey hairs. Abdomen ochreous-yellow, clothed with dull golden-grey pubescence, with a central pale spot, and a pair of parallel, longitudinal, black bands in the apical half.) . . . *aureopilosus*, sp. n.

II. Legs i. and ii. clothed and fringed with long bright sulphur-yellow or grey hairs.

*aa*. Legs i. and ii. clothed with bright sulphur-yellow hairs. Carapace and abdomen marked with sulphur-yellow, or white, longitudinal bands.

*a*. Carapace marked with yellow bands ; clypeus clothed with yellow hairs.

(Mandibles metallic green and blue, with a basal fringe of yellow hairs. Abdomen black, with a pale anterior marginal band, and a band of sulphur-yellow hairs on each side, united in front, with a central triangular yellow spot, followed nearer the spinners by a pair of smaller yellow spots.) . . . . . *tuberculatus*.

*b*. Carapace marked with white bands ; clypeus clothed with white hairs . . . . . *arizonensis*.

*bb*. Legs i. and ii. clothed with silky grey hairs. Carapace black, with grey pubescence on the sides. Abdomen dull magenta-red, with white markings; not marked with longitudinal yellow or white bands.

(Mandibles brown-black, only slightly metallic. Abdomen clothed entirely, dorsally, with dull crimson-lake scales, except in the centre of the apical half; with an anterior marginal white band, an oblique median lateral white line, a central triangular spot, and an obliquely curved line followed by a small white spot towards the spinners; sides speckled with white, and with fine pencils of white hairs; ventral area clothed entirely with white pubescence.) . . . . . *cruentus*, sp. n.

B. Abdomen unicolorous brown, thinly clothed with scattered white hairs.

(Mandibles brown, not metallic, or only very slightly so; tibia and tarsus of palpus fringed with long yellow hairs.) . . . . . { *georgii*, Peckh. / *brunneus*.

Note.—There are evidently also good distinctive characters (among others) to be drawn from the comparative length of the legs, the width of the posterior row of eyes, and the comparative length of *protarsus iv.*; but the measuring of the legs and the tabulation of other characters must be left to whomsoever has leisure to undertake a monograph of the genus.

*P. fulgidus*, C. L. Koch, and *P. montivagus*, Peckh., are unknown to me, and they cannot be included in the Table. The characters of the male of *P. mexicanus*, Peckh., are taken from his figure.

### 1. **Phidippus carneus.** (Tab. XXVI. figg. 9, 9 *a*, ♀.)

*Phidippus carneus,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 33, t. 2. figg. 5, 5 *a* (♀) (April 1896) [1].

Type, ♀, in coll. Peckham. Total length 14·5 millim.

*Hab.* Central America [1].

This species has been included in our Table on the characters given by Peckham [1]. Three very large immature females, about 14 millim. in length, taken by Mr. Rogers in Costa Rica, probably belong to it, but not being adult one cannot be absolutely sure. Our figures are taken from Peckham's work.

### 2. **Phidippus foveolatus,** sp. n. (Tab. XXVI. figg. 10, 10 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 14 millim.

Carapace purple-brown, clothed in front and on the sides with grey hairs and scales (the cephalic area has been denuded of hairs). Abdomen deep purple-brown above, surrounded on the sides by silvery-grey hairs, forming a more distinct marginal band in front, followed by two indistinct pale spots towards the spinners; the central anterior dorsal area bears a patch of silvery-grey scales, followed by the normal median triangular white spot, then by a central elongate lanceolate band of silvery-grey metallic scales reaching to the spinners, flanked on each side by a larger and a smaller, slightly transverse, white spot; the ventral area has a broad brown band denuded of pale scales, but with two fine lines of pale hairs extending longitudinally from the genital rima to the middle only. Palpi pale red-brown, clothed with pale hairs, the two apical segments fringed with much longer hairs. Legs and sternum purple-brown, clothed throughout with grey scales and hairs, intermingled with longer black hairs, tibiæ i. and ii. being clothed densely with black hairs beneath. Mandibles bright metallic green, with basal grey hairs. Vulva notched behind, consisting of a deep cavity having a short, narrow, central, anterior carina.

*Hab.* Mexico, Teapa (*H. H. Smith*).

### 3. **Phidippus aureopilosus,** sp. n. (Tab. XXVI. figg. 11, 11 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 10 millim.

Carapace red-brown, clothed with golden-grey pubescence and long brown hairs, without any white bands. Abdomen ochreous-yellow, clothed with golden pubescence, with a pair of black bands on the apical half; sides and ventral area brown. Legs red-brown, the apex of all the segments annulated with black; palpi, legs, clypeus, and base of the mandibles clothed with scattered grey hairs. Posterior row of eyes much wider than the anterior; small eyes one-third only from the lateral anteriors; anterior row of eyes almost straight (very slightly recurved) by their posterior margins. Vulva consisting of a transverse circular-oval area, deeply and squarely notched in the middle of the posterior margin, with anteriorly a pair of deep closely adjacent concavities.

*Hab.* Panama, Bugaba (*Champion*).

### 4. **Phidippus tuberculatus,** sp. n. (Tab. XXVII. figg. 1, 1 *a–d*, ♂; 2, 2, *a*, *b*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 9, ♀ 10 millim.

♂. Carapace with stout conical tubercles at the sides of the cephalic region, and a pencil of long black hairs above, in front of the posterior lateral eyes; black or dark red-brown, clothed with brownish-yellow hairs and scales round the central anterior eyes, and black scales and short hairs behind, having a patch of white hairs just below and in front of the tubercle, and a short broad sulphur-yellow band extending posteriorly from behind the tubercle; the margins fringed with white hairs. Abdomen black, with a double

band of sulphur-yellow hairs, the bands coalescent in front, narrowing behind, and almost united in the centre by the normal triangular patch, which is, in this case, yellow, extending almost to the spinners; there is also a paler whitish anterior marginal band extending scarcely one-third along the sides, coalescing with the yellow band in front; sides deep olive-brown, becoming streaked with white hairs below, longitudinally; ventral area black, with six or seven tufts of white hair extending transversely inwards; the anterior portion of the white lateral streaks bears some bright metallic-orange scales. Mandibles blue and green, metallic, with yellow hairs at the base above. Palpi red-brown; patella, tibia, and tarsus clothed with bright yellow scales above. Leg i. pale red-brown, clothed (except the femur) with yellow scales and fine black hairs above, and with very long yellow hairs beneath, especially on the tibia; femur i. clothed with bright yellow hairs beneath, with a spot of white scales at the apex above, some yellow, brown, and white scales dorsally, and a long pencil of black hairs springing from the base of the dorsal ridge and curving over from behind forwards. Leg ii. as in i., but without the femoral black pencil. Legs iii. and iv. pale red-brown, with whitish scales and fine black hairs above. Sternum, coxæ, and underside of legs iii. and iv. with shaggy white hairs.

♀. Carapace white in front, dull yellow at the sides, purple-brown above, with three transverse indistinct bands of dull yellow scales in the cephalic quadrangle. Abdomen similar to that of the male, but with the two central yellow lines which unite to form a triangular spot more conspicuous, but not meeting behind, with a pair of very small yellow spots between it and the spinners; sides and lower surface entirely clothed with dull white pubescence. Legs pale red-brown, i. and ii. clothed with yellow, iii. and iv. with yellow-white hairs. Mandibles metallic green, clothed with yellow hairs at the base. Palpi fringed with long yellow hairs.

Carapace of male tuberculate. Posterior eyes in both sexes set on strong tubercles; cephalic quadrangle much wider behind; central posterior eyes two-thirds of a diameter remote from the lateral posteriors.

Palpus of the male with the bulb bilobate, as usual; apical spine broad at the base transversely on the outer side, sinuous and very fine; tibial spur short, slightly curving downward. Mandibles normal, with one lower and two upper teeth.

Vulva of the female with a Λ-shaped notch behind and two reniform adjacent convergent cavities in front, remote from the posterior margin.

*Hab.* Mexico, Chilpancingo (*H. H. Smith*).

### 5. **Phidippus arizonensis.** (Tab. XXVII. fig. 3, ♂.)

*Attus arizonensis*, Peckh. Descr. of new or little-known Attidæ of U.S. p. 13 (1883)[1].

*Phidippus arizonensis*, Peckh. Trans. Wisc. Acad. Sci. vii. p. 18, t. 1. fig. 10, t. 2. fig. 10 (♂) (1888)[2]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 279 (♀)[3].

Type, ♂, in coll. Peckham. Total length 11 millim.

*Hab.* North America, Arizona[2], Texas[2], Upper[2] and Lower[3] California.—Mexico, Tepic[3], Agua Caliente[3].

This species would appear to be closely allied to *P. tuberculatus*; but Peckham makes no mention of any cephalic tubercles, merely remarking "cephalic part with sides very widely rounded," nor does he mention any pencil of hairs on femur i. The figure of the palpus is taken from his work.

### 6. **Phidippus cruentus,** sp. n. (Tab. XXVII. figg. 4, 4 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 13 millim.

*Hab.* Mexico, Jalisco (*Höge*).

For a description of this species and its characteristic features, see the synoptical Table. The general dull crimson tint of the abdomen should enable it to be recognized.

### 7. **Phidippus georgii.** (Tab. XXVII. fig. 5, ♀.)

*Phidippus georgii*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 34, t. 2. figg. 6, 6 *a* (♀) (April 1896) [1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 280, t. 17. fig. 23 (♀) [2].

Type, ♀, in coll. Peckham. Total length 17 millim.

*Hab.* Mexico, Tepic [1 2].

This species probably comes very close to *P. brunneus*, if it is not identical with it. The figure of the vulva is taken from Peckham's work.

### 8. **Phidippus brunneus,** sp. n. (Tab. XXVII. figg. 6, 6 *a*, *b*, ♂; 7, 7 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 7·5, ♀ 12 millim.

♂. Carapace, abdomen, and legs entirely clothed with rich brown pubescence and with fine scattered black hairs, the abdomen sometimes bearing a row of indistinct pencils of white hairs, grouped together, on the dorsal area. Protarsi, except the apex, and tarsi pale red-brown or yellow; palpi pale, with dark hairs, the tarsus clothed above with bright yellow hairs. In less mature forms the entire legs, except the femora, are paler. Mandibles brown.

♀. Similar in colour to the male, but with the body and legs more or less clothed with pale hairs, giving it a dusty appearance, while the cephalic region and the dorsal area of the abdomen are set with isolated pencils of long pure white hairs. Clypeus fringed with dull ochre hairs; tibia and tarsus of palpus fringed with long yellow hairs. Mandibles brown-black. Ventral area unicolorous brown. The groups of white hairs on the abdomen are arranged in two rows on each side of the central posterior dorsal area, not conspicuous, but quite distinct in a dried example.

♂. Cephalic quadrangle much wider behind; central posterior eyes two-thirds more remote from the lateral posteriors than from the lateral anteriors. Mandibles normal. Palpus: bulb bilobate, the apical lobe terminating in a broad strongly curved black spine; tibial spur short, stout, and curving slightly downward.

♀. Eyes similar to those of the male. Vulva consisting of a small, but deep, semilunar, transverse, recurving cavity; the posterior margin notched.

*Hab.* Mexico, Chilpancingo (*H. H. Smith*).

### 9. **Phidippus howardi.** (Tab. XXVII. fig. 8, ♂.)

*Phidippus howardii*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 34, t. 2. figg. 7, 7 *a*, *b* (♂) (April 1896) [1].

Type, ♂, in coll. Peckham. Total length 9 millim.

*Hab.* Mexico [1].

The transverse white band behind the cephalic area distinguishes this species from any others recorded from Central America. The mandibles are blue, iridescent, with green reflections. Legs rufous, barred with black. Abdomen with the central white spot usual in this group of the genus. (Sec. Peckham's description. Our figure of the palpus is taken from his work.)

### 10. **Phidippus albulatus,** sp. n. (Tab. XXVII. figg. 9, 9 *a–f*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 12 millim. (variable).

♂. Carapace deep purple-black, with a marginal line of white scales extending from in front of the anterior

lateral eyes almost to the posterior angles, broader in front, narrowing as it touches the margin; the clypeus, though fringed with white and ochre hairs, is free from white scales; a very broad band of white scales extends from behind the anterior lateral eyes, curving round over three-fourths of the carapace, convergent but not meeting at the centre. Central anterior eyes surrounded with ochre hairs. Three spots of white hairs occupy the central ocular area between the central and lateral posterior eyes. Abdomen black or deep red-brown, clothed with scattered silvery or golden scales, having a broad anterior pure white marginal band, followed by an oblique white spot and a semicircular spot, on each side; viewed from above, the two semicircular spots form the boundaries of a parenthesis; the dorsal area has a large triangular central white spot, with a pair of smaller ones halfway between it and the anterior margin; ventral area entirely brown. Mandibles metallic green, clothed at their base above with pure white hairs, which become tawny at the sides. Femur of palpus entirely white above; patella margined with white scales; tibia and base of tarsus margined on the inner side with white scales, the tarsus otherwise black. Femur i. with a broad, white, oblique band at the base on the inner side; inner and upper apex clothed with white scales; patella i. margined with white; tibia i. almost entirely black; protarsus and tarsus i. with white hairs at their base. Legs ii., iii., and iv. similar, but ii. with the femoral spot smaller and the protarsus whiter, and iii. and iv. with the basal half of the tibia white. Underside of legs and sternum brown; tibia i. with dense black and some white hairs beneath. Palpus: bulb of the usual bilobate form; spine stout and bifid at its apex; tibial spur very strongly curved. Mandibles normal, with a pair of adjacent teeth on the upperside and a single rather larger tooth on the lower side opposite.

♀. The female examples received are not adult.

*Hab.* MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

### 11. **Phidippus mexicanus.** (Tab. XXVII. fig. 10, ♂.)

*Phidippus mexicanus,* Peckh. Trans. Wisc. Acad. Sci. vii. p. 23, t. 2. figg. 7 (♂), 18 (♀) (1888)[1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 280 (♀)[2].

*Hab.* NORTH AMERICA, Lower California, El Taste[2].—MEXICO[1], Tepic[2].

This species is apparently very closely allied to *P. albulatus*, but the apical spine of the palpus is aculeate (not bifid), according to our figure, taken from Peckham's work.

### 12. **Phidippus bidentatus,** sp. n. (Tab. XXVII. figg. 11, 11 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 10 millim.

(Carapace and abdomen accidentally devoid of hair and scales.) Legs red-brown, clothed with black hairs, especially beneath the femora and tibiæ of i. and ii. Mandibles bright metallic green, with blue reflections, having a single large upper tooth (the third is almost obsolete) and a single smaller lower tooth. Palpus: bulb bilobate, much enlarged posteriorly, the apical lobe enlarged, terminating in a very fine slightly sinuous spine; tibial spur short, broad at the base and slightly curving downward. Cephalic quadrangle much wider behind; central posterior eyes two-thirds of a diameter remote from the lateral posteriors.

*Hab.* MEXICO, Chiapas (*Höge*).

### 13. **Phidippus fulgidus.**

*Phidippus fulgidus,* C. L. Koch, Die Arachn. xiii. p. 153, fig. 1209 (♀)[1].

*Hab.* MEXICO[1].

This and the following species are unknown to me.

### 14. Phidippus montivagus.

*Phidippus montivagus*, Peckh. Trans. Wisc. Acad. Sci. xiii. p. 293, t. 24. figg. 3, 3 *a* (♀)[1].

Type, ♀, in coll. Peckham. Total length 11 millim.

*Hab.* Mexico, Chihuahua (*Townsend*[1]).

## PARNÆNUS.

*Parnænus*, Peckham, Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 37 (April 1896).

Type *Phidippus cyanidens*, C. L. Koch. South America.

The spiders here included under this genus differ from *Phidippus*, *Paraphidippus*, and *Metaphidippus* in the details connected with the position of the eyes and the form of the carapace: the posterior eyes are wide apart, situated almost on the margin of the carapace, and are seated on a distinct tubercle; while the carapace is inflated laterally in front of the posterior eyes, and slopes abruptly behind. The maxillæ are rounded on the outer side at the apex. Whether these characters will prove of any value when more material comes to hand, one cannot say, but it is very doubtful.

The males of the two species known to me, which have the same characteristics as those ascribed by Peckham to *P. cyanidens*, may be distinguished from one another, as well as from *P. cyanidens*, as follows:—

*Males.*

I. Apex of mandible blue, metallic; base not clothed with white hairs . . *cyanidens*, Peckh.

II. Apex of mandible red-brown; base densely clothed with white hairs and pubescence.

A. Mandible very long; teeth widely separate, the larger lower one about halfway between the base of the fang and the two upper smaller teeth, which are situated close together, the anterior being the largest. The upper apical angle of the basal segment bears a stout conspicuous cusp. Patella and tibia of palpus three times longer than broad, the latter with a long slender spur bent down and curling round the base of the bulb; apical spine of the bulb long, slender, sinuous. Lateral white band of the carapace attenuated and terminating beneath the small eyes, not continued round the clypeus . . . . . *cuspidatus*, sp. n.

B. Mandible short; teeth close together, the lower tooth slightly larger and situated opposite the two small upper teeth, about one-third from the base of the fang. Upper apical angle of the basal segment without any cusp. Patella and tibia of palpus scarcely longer than broad, the spur on the latter slender and straight, not curved round the base of the bulb; apical spine of the bulb dilate at the base, filiform at the apex, straight, short. Lateral white band on the carapace extending entirely round over the clypeus . . . . . *fimbriatus*, sp. n.

### 1. **Parnænus cyanidens.** (Tab. XXVII. figg. 12, ♂ ; 13, 13 *a*, *b*, ♀ .)

***Phidippus cyanidens,*** C. L. Koch, Die Arachn. xiii. p. 156, fig. 1211 [1].

***Parnænus cyanidens,*** Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 38, t. 3. figg. 2, 2 *a*, *b* (♀), fig. 9 *c* (♂) (April 1896) [2].

*Hab.* GUATEMALA [1].

Our figures are copied from Peckham's work, and the characters given in the Table taken from his description.

### 2. **Parnænus cuspidatus,** sp. n. (Tab. XXVII. figg. 14, 14 *a–d*, ♂ .)

Type, ♂, in coll. Godman & Salvin. Total length 9 millim.

*Dried example.* Carapace deep brown, the cephalic area clothed with greenish scales and with a spot of pure white scales between the posterior lateral eyes; a broad lateral band of white scales, attenuate in front, runs from behind the lateral anterior eyes to the posterior margin. The clypeus, the base of the mandibles, and the anterior half of the marginal rim of the carapace clothed with pure white scales; the lower side of the marginal rim and the femur and patella of the palpus with white scales. Abdomen dull brown, clothed with golden-greenish scales, with a broad marginal band of white scales, meeting in front and extending almost to the spinners; sides with scattered white hairs and scales; ventral area brown, devoid of scales. Legs red-brown, annulated with bands of white scales; femora, and the bases of all the other segments also, including the tarsi, thinly clothed with white scales. Sternum, coxæ, maxillæ, and labium brown.

Cephalic quadrangle distinctly wider behind; the posterior lateral eyes set on conspicuous tubercles; the posterior centrals distinctly further from the posterior laterals than from the anterior laterals. Mandibles much developed, the basal segments strongly divergent, as long as the carapace, with a large, stout, straight tooth towards the insertion of the fang, and a second rather smaller tooth, and a third still smaller, very close together at the inner basal angle; the inner angle at the apex has a short stout cusp; fang very long, sinuous in the middle, and slightly curved from the base to the apex. Maxillæ long, dilate at the apex, but not produced at the outer apical angle. Palpus bilobate, with a long, slender, sinuous spine springing from its outer side at the apex; tibial spur long, slender, and strongly curving downward.

*Hab.* GUATEMALA (*Sarg*).

### 3. **Parnænus fimbriatus,** sp. n. (Tab. XXVII. figg. 15, 15 *a–c*, ♂ .)

Type, ♂, in coll. Godman & Salvin. Total length 6·5 millim.

Carapace brown or black, clothed with iridescent scales, with a central white cephalic spot and a very broad marginal band of white hairs, embracing the clypeus and the basal half of the mandibles. Abdomen brown, with iridescent scales and a broad marginal band of white hairs, broken in front and extending to the spinners; lateral and ventral areas brown, separated by a pale line. Legs yellow-brown, the femora and the apex of the other segments annulated with black. Inner upper angle of the mandibles developed, bearing two small teeth, the lower angle having one small tooth (but very variable, see Plate). Palpal bulb elongate, developed behind, but not enlarged, anterior lobe bearing a straight, sharp, black spine, enlarged at the base, aculeate at the apex; tibial spur of the palpus about as long as the segment, slender, only very slightly curved.

*Hab.* GUATEMALA (*Sarg*).

## Group HOMALATTEÆ.

The genera belonging to this group which are known to occur in Central America may be distinguished as follows:—

A. Integument of abdomen not coriaceous on the dorsal area.
  1. Cephalic quadrangle of eyes wider behind (in the type-species, *Z. rufipes*) . . . . . ZYGOBALLUS, Peckh.
  2. Cephalic quadrangle of eyes not wider behind (in the type-species, *B. magna*) . . . . . BEATA, Peckh.

B. Integument of abdomen coriaceous over the entire, or part of the, dorsal area.
  1. Sternum not prolonged behind, between coxæ iv. . . . . HOMALATTOIDES, gen. nov.
  2. Sternum produced and prolonged behind, between coxæ iv. . . COCCORCHESTES, Thor.

NOTE.—The characters given for the various genera of this group are usually based on differences in the position of the eyes and are far from satisfactory. A thorough revision of the whole group, as well as of the Phidippeæ, is needed, but it cannot be undertaken unless the Salticidæ of other districts are also studied.

## ZYGOBALLUS.

*Zygoballus*, Peckham, Proc. Nat. Hist. Soc. Wisc. 1885, p. 81 (Dec.).

Type *Z. rufipes*, Peckham. Guatemala.

Carapace almost square, vertically depressed behind from the posterior row of eyes. Cephalic quadrangle of eyes broader than long, wider behind. Legs i. longest, all four pairs slender, the first, however, stouter than the others; tibia i. with 2—2—2 spines beneath, the first pair being subbasal; tibiæ and protarsi iii. and iv. with a few spines.

This genus is very likely congeneric with *Rhanis*, C. L. Koch. The species known to me may be recognized from the following Table, the characters of the others (*Z. parvus*, Hentz, excepted) being added from Peckham's descriptions:—

### *Males.*

A. Mandibles much developed, directed obliquely forward, with a long sinuous fang, the basal segment bearing a long straight spur stretching forward above the fang, and another, more or less hammer-headed, opposite it below the fang.
  1. Basal segment of mandible with a longer or shorter (variable) curved cusp towards the apex above. Palpus and femur, trochanter, and coxa of leg i. red-brown. Legs ii., iii., and iv. yellow, with black slashes along the sides. Palpal bulb elongate-oval, without any visible spine at the apex (possibly not constant); tibial spur long, slender, and slightly sinuous. (Tibia i. six times as long as its diameter.) . . . . . *rufipes*, Peckh.
  2. Basal segment of mandible without cusp towards the apex above. Femur, protarsus, and apex of tibia of leg i. brown. Legs ii., iii., and iv. yellow, unicolorous. Palpal bulb broader oval, with a short slender sinuous black spine at the apex. (Drawn from Peckham's description and figures.) *remotus*, Peckh.

B. Mandibles not developed, stout, vertical, without either the long spur above or the apophysis below. Fang short.

1. Tibial spur very broad at its apex, viewed in profile. Tibia of palpus not longer than broad, patella broader than long, viewed from beneath. Spine at the apex of the bulb longer and much stouter. (Tibia i. incrassate, scarcely three times longer than its diameter.) Abdomen black, with three white spots on the dorsal margin on each side. Legs i. red-brown, protarsus and tarsus paler; ii., iii., iv. unicolorous yellow, femur iv. with an inner apical dusky brown spot. Carapace black, without marginal white band . . . . . *tibialis*, sp. n.

2. Tibial spur short, but sharp, its apex directed forward. Tibia of palpus twice longer than broad; spine at the apex of the bulb shorter and quite slender. Abdomen dark brown, with a white anterior marginal band and two faint white transverse dorsal bands, becoming obsolescent in the middle. Palpi and leg i. red-brown, protarsus and tarsus paler; legs ii., iii., and iv. reddish-brown above, yellowish beneath, the coxæ and trochanters and the base of the femora iii. and iv. yellow. Carapace dark brown, with a white band round the lower margin and some other patches of white hairs. (These characters are all deduced from Peckham's description and figures.) . . . . . *minutus*, Peckh.

*Females.*

A. Leg i. much less incrassate, tibia nearly four times longer than its diameter. (Vulva consisting of a pair of smaller oval orifices about three diameters apart, two diameters from the posterior margin, which is emarginate in the middle. Carapace and abdomen brown, the latter with a pair of parallel pale longitudinal lines on the anterior half, followed by a more or less dentated pale band, the dentations being usually continued as curving oblique slashes on the sides. Femur i. and all the other segments of legs i., ii., and iii. more or less slashed with a black line on the anterior side, and a narrow basal annulus. Femur and tibia iv. with a large black spot on the inner side at the apex.) . . . . . *rufipes*.

B. Leg i. much more incrassate, tibia scarcely more than twice longer than its diameter.

1. Vulval area broader than long.

*a*. Vulval area not much broader than long, transverse-oval; with a pair of much larger oval-triangular orifices, half a diameter apart, the same distance from the posterior margin, which is not emarginate, but has a low rounded prominence in the middle. (Characters taken from Emerton's drawing.) . . . . . *minutus*.

*b*. Vulval area much broader than long, transverse-triangular, with a pair of much smaller orifices, three or four diameters apart, two or three from the posterior margin (variable), which is prominent in the middle, with a small central rounded cavity . . . . . *tibialis*.

2. Vulval area longer than broad. (Vulva consisting of a pair of small orifices two and a half diameters apart and two diameters from the posterior margin, which is emarginate in the middle.) . . . . . *maculatus*, sp. n.

Note.—The coloration in the last three species is much the same. Legs i. brown, protarsus and tarsus paler; ii., iii., and iv. yellow, each segment tipped with black or brown at the apex; femur iv. with a larger spot of black at the apex on the inner, or upper, side. Abdomen brown or black, with spotted and streaked white pattern, which is very variable. In the only example we have of *Z. maculatus* the white pattern is almost obsolete, leaving three white marginal dorsal spots and four very indistinct central spots. If it were not for the difference in the position of the vulval orifices, I should not hesitate to regard both *Z. maculatus* and *Z. tibialis* as identical with *Z. minutus*, Peckh.

*Z. parvus*, Hentz, is unknown to me and cannot therefore be included in the Table.

### 1. **Zygoballus rufipes.** (Tab. XXVII. figg. 16, 16 *a–h*, ♂; Tab. XXVIII. figg. 1, 1 *a*, ♀.)

*Zygoballus rufipes*, Peckh. Proc. Nat. Hist. Soc. Wisc. 1885, p. 82, t. 2. figg. 12, 12 *a*, *b* (♂) (Dec.) [1].

*Rhane munda*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 162, t. 19. figg. 17, 17 *a*, *b* (♀) (March 1896) [2].

*Zygoballus strenuus*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 92, t. 7. figg. 4, 4 *a* (♀) (April 1896) [3].

Type, ♂, of *Z. rufipes*, of, ♀, *Z. strenuus*, in coll. Peckham; of ♂ of *R. munda*, and gynetype, ♀, in coll. Godman & Salvin. Total length, ♂ 4, ♀ 5 millim.

*Hab.* Mexico, Teapa (*H. H. Smith* [2]); Guatemala (*Sarg*), Eastern district [1 3].

The non-incrassation of tibia i. in both sexes and other characters given in the Table will serve to distinguish this species from other Central-American forms known to me. I have not seen Peckham's type of *Z. strenuus*, but there can be little doubt as to its identity with the female of *R. munda*. The present species much resembles *Z. suavis*, Peckh., from Jamaica, especially in the armature of the mandibles (sec. Peckham's figure); but the tibial spur is much longer and the legs ii., iii., and iv. (instead of being brown) are yellow, with black slashes along the sides. *R. munda* is also identical with *Z. rufipes*, Peckh. (*cf.* the figures of the male).

### 2. **Zygoballus remotus.** (Tab. XXVIII. fig. 2, ♂.)

*Zygoballus remotus*, Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 89, t. 7. figg. 2, 2 *a* (♂) (April 1896) [1].

Type, ♂, in coll. Peckham. Total length 4·3 millim.

*Hab.* Guatemala [1].

Peckham [1] makes no mention of any tooth, spur, or cusp on the basal segment of the mandible above, at the apex, so that one must conclude there is none present; and the absence of this will enable *Z. remotus* to be distinguished at once from the male of *Z. rufipes*. The legs ii., iii., and iv. in the present species, too, are unicolorous yellow (not slashed with black, as in *Z. rufipes*). Our figure of the palpus is taken from Peckham's work.

3. **Zygoballus tibialis,** sp. n. (Tab. XXVIII. figg. 3, 3 *a*, *b*, ♂ ; 4, 4 *a–c*, ♀ .)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3, ♀ 4 millim.

*Hab.* Guatemala (*Sarg*).

The male can be at once recognized from other Central-American forms by the much enlarged tibial spur of the palpus. Legs ii., iii., and iv. are unicolorous yellow. In the female the legs are spotted with black at the apex of the segments, and the abdomen has a very striking dorsal pattern of white spots and bands. The latter sex can be known amongst closely allied forms by the shape of the vulva.

4. **Zygoballus minutus.** (Tab. XXVIII. figg. 5, 5 *a*, ♂ ; 6, ♀ .)

*Zygoballus minutus,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 90, t. 7. figg. 3, 3 *c* (♀), 3 *a, b* (♂) (April 1896) [1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 3·5, ♀ 4 millim.

*Hab.* Guatemala, Eastern district [1].

Very similar in general appearance to *Z. tibialis* and *Z. maculatus,* but recognizable by the form of the palpal organs and vulva, copies of the figures of which are here given from Peckham's work.

5. **Zygoballus maculatus,** sp. n. (Tab. XXVIII. figg. 7, 7 *a*, ♀ .)

Type, ♀, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* Guatemala (*Sarg*).

This species is black, with a few white dorsal and marginal spots on the abdomen, and the legs i. brown, and ii., iii., and iv. yellow, annulated with black. It is probably recognizable by the form of the vulva only, for the coloration in these spiders is very variable, the general pattern being common to many of them.

6. **Zygoballus parvus.**

*Attus parvus,* Hentz, Spid. U.S., ed. by Burgess, p. 62, t. 8. fig. 17 (♀) [1].
*Zygoballus parvus,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 288 [2].

*Hab.* North America, North Carolina [1].—Mexico, Tepic [2].

Banks [2] records a few females from Tepic, without, however, giving any characters by which the species might be identified.

## BEATA.

*Beata,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. ii. (3) p. 167 (Dec. 1895).

Type *B. magna,* Peckham. Colombia.

Very similar to *Homalattoides* in general characters, except that there is an entire absence of any coriaceous dorsal covering on the abdomen. The mandible is toothed in the same manner as in that genus.

*Females.*

A. Size larger, length 5·5–7·5 millim. Cephalic quadrangle of eyes not wider behind; posterior eyes not set on the margin. Tibia i. more incrassate. Maxillæ much dilate at their apex. Tibia and protarsus iv. spined, the former with two spines, the latter with four, at the apex beneath . . . . *magna*, Peckh.

B. Size smaller, length 4 millim. Cephalic quadrangle of eyes distinctly wider behind; posterior eyes set on the margin and on distinct inflations or tubercles. Tibia i. less incrassate. Maxillæ only normally dilate at their apex. Tibia and protarsi iv. without spines beneath . . . . . *cephalica*, sp. n.

### 1. **Beata magna.** (Tab. XXVIII. figg. 8, 8 *a–f*, ♀.)

*Beata magna*, Peckh. Proc. Nat. Hist. Soc. Wisc. ii. 3, p. 168, t. 15. figg. 9, 9 *a–c* (♀)[1]; Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 13 (♀)[2].

Type, ♀, in coll. Peckham. Total length 5·5 millim.

*Hab.* Guatemala (*Sarg*); Panama, Bugaba (*Champion*); Central America[1].—South America, Colombia[2].

### 2. **Beata cephalica,** sp. n. (Tab. XXVIII. figg. 9, 9 *a–e*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

*Hab.* Panama, Bugaba (*Champion*).

## HOMALATTOIDES, gen. nov.

Type *H. roseus*, sp. n., ♂. Panama.

Leg i. incrassate in both sexes, but more strongly so in the male than in the female; tibia scarcely twice longer than broad, with 2—2—2 spines in the apical half. Protarsi and tarsi in the female incrassate; protarsus and tarsus i. longer in the male than in the female. Tibiæ and protarsi iii. and iv. almost devoid of spines, with one or more at the apex only. Carapace square, convex, abruptly inclined behind the posterior row of eyes, somewhat excavate. Cephalic quadrangle of eyes much broader than long, wider behind. Small eyes one-third from the anterior laterals. Sternum twice as long as broad, oval, pointed behind, not produced between the coxæ of the fourth pair of legs. Abdomen in both sexes coriaceous.

It is possible that the species referred to this genus are congeneric with *Homalattus*, Adam White, Ann. & Mag. Nat. Hist. vii. p. 476 (1841), of which the type is *H. pustulatus*, White, from Sierra Leone. But for the present I have thought it better to describe the Central-American forms under another generic name. The three known to me may be distinguished as follows:—

*Males.*

A. Tibia i. not or scarcely more than twice as long as broad; carapace and abdomen clothed with violet iridescent scales, the abdomen coriaceous over the entire dorsal area.

1. Tibia i. scarcely longer than broad, with 2—2—2 conspicuous spines beneath. Carapace margined with a white band. Lower tooth of mandible broad, but no large cusp. Apical spine of palpal bulb bifid, a longer inner spine and a shorter adjacent outer cusp . . . . . *roseus*, sp. n.

2. Tibia i. rather more than twice as long as broad, almost devoid of spines. Carapace not margined with white. Mandible with a large conical cusp beneath. Apical spine of palpal bulb single, short, stout, curving inward . . . . . *alboguttatus*, sp. n.

B. Tibia i. over three times as long as broad, with 2—2—2 spines in the apical half. Carapace red-brown, abdomen whity-brown, both clothed with white scales, the latter with a coriaceous plate on the anterior dorsal area only. Apical portion of palpal bulb forming two subequal conspicuous cusps . . . . . *longipes*, sp. n.

Note.—*H. phœniceus* (Simon) is not known to me, and it cannot therefore be included in the Table.

### 1. **Homalattoides roseus**, sp. n. (Tab. XXVIII. figg. 10, 10 *a*, *b*, ♂; 11, 11 *a*, *b*, ♀.)

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

Carapace and abdomen red-brown, with violet-pink iridescent reflections; the clypeus and lateral margins of the cephalic area clothed with white hairs. Abdomen glabrous, shiny. Leg i. incrassate, the tibia strongly so, and heavily fringed with black hairs beneath, the three pairs of spines situated in the anterior half; the tibia and patella of all four pairs of legs with a narrow band of white scales on the inner side; leg i. brown, with white scales; ii. with the protarsi yellow in the basal two-thirds; iii. and iv. brown, with the protarsi yellow, except at the apex. Mandibles and tarsus of palpus with a band of white hairs across the middle. Tibial spur of palpus short, sharp, slightly curved, directed downward. Apex of bulb with a longer black spine and on the outer side of it a shorter black cusp.

Female similar to the male. Leg i. incrassate. Carapace clothed with scattered azure scales (these are possibly worn off in the male). Mandibles with two small teeth above and one large tooth below. Protarsus iv. scarcely longer than the tarsus.

*Hab.* Panama, Bugaba (*Champion*).

A single adult male and an immature female are all that have come to hand of this beautiful species.

### 2. **Homalattoides longipes**, sp. n. (Tab. XXVIII. figg. 12, 12 *a–g*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

Carapace black-brown, clothed with scattered white scales, but without a decided white band round the margins. Abdomen whity-brown, clothed with white scales, with an oval coriaceous plate on the anterior dorsal area. Legs red-brown, clothed with scattered white scales (probably worn off in many places). Protarsi and tarsi of legs ii., iii., and iv. yellow. Palpi brown, the femur clothed with white scales. Mandibles unicolorous dark red-brown. Tibia i. three times as long as its diameter, with 2—2—2 spines in the apical half. Mandibles with two small teeth above, and one large bifid tooth below. Palpal bulb with a pair of subsimilar spines at the apex. Protarsus iv. nearly twice as long as the tarsus.

*Hab.* Panama, Bugaba (*Champion*).

### 3. **Homalattoides alboguttatus**, sp. n. (Tab. XXVIII. figg. 13, 13 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

Carapace red-brown, piceous, the abdomen red-olive-brown, both clothed with green and pink iridescent scales; the clypeus and lateral margins of the cephalic area thinly clothed with white scales. Legs i. red-brown, ii., iii., iv. brown, with the base of the protarsus and the whole of the tarsus yellow; tibiæ with a spot of white scales on the dorsal side towards the apex; patellæ with a slight fringe of white hairs on the anterior margin. Mandibles and palpi brown, without any white transverse bands.

Leg i. incrassate; tibia with one pair of spines at the apex only, not fringed with hairs beneath. Mandibles very stout, with a large bluntly pointed apophysis towards the base of the basal segment.
Apex of palpal bulb with a single stout curving spine.

*Hab.* Mexico, Amula (*H. H. Smith*).

### 4. Homalattoides phœniceus.

*Homalattus phœniceus,* E. Simon, Ann. Soc. Ent. Fr. 1888, p. 203 (♂ ♀) [1].

*Hab.* Mexico [1].

This species is unknown to me.

## COCCORCHESTES.

*Coccorchestes,* Thorell, Ann. Mus. Civ. Stor. Nat. Genova, xvii. p. 671 (1881).

Type *C. rufipes*, Thorell. Malay Archipelago.

General characters very like those of *Homalattoides*, the integument of the abdomen being coriaceous; but the sternum is produced behind between coxæ iv. Tibia i. with 1—1 spines on the outer side beneath and one on the inner side; protarsus i. with 2—2 spines beneath. Tibia ii. with one basal spine beneath; protarsus ii. with one spine beneath; no other spines on the legs. Tarsi i., ii., iii., iv. as long as or longer than the protarsi (not shorter than the protarsi). Anterior row of eyes straight by their centres.

*Males.*

A. Carapace and abdomen with deep blue reflections . . . . . *scarabæoides,* O. P.-Cambr.
B. Carapace and abdomen with deep green reflections . . . . . *adjacens,* O. P.-Cambr.

*Females.*

A. Carapace and abdomen with deep blue reflections. Vulva with a triangular pale area near the posterior margin, but without any square central chitinous piece . . . . . *scarabæoides.*
B. Carapace and abdomen with deep green reflections. Vulva with a triangular pale area near the posterior margin, which bears a central square chitinous piece . . . . . *adjacens.*

Note.—The females of both species are here described for the first time.

### 1. Coccorchestes scarabæoides. (Tab. XXVIII. figg. 14, 14 *a*, ♀.)

*Coccorchestes scarabæoides,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 121, t. 15. figg. 8, 8 *a–g* (♂) [1].

Type ♂, deuterotype ♀, in coll. Godman & Salvin. Total length, ♂ 1·25, ♀ 1·75 millim.

Colour the same in both sexes, black, with brilliant shiny blue reflections.

*Hab.* Mexico, Teapa (*H. H. Smith*); Panama, Bugaba (*Champion* [1]).

### 2. Coccorchestes adjacens. (Tab. XXVIII. figg. 15, 15 *a–d*, ♀.)

*Coccorchestes adjacens,* O. P.-Cambr. loc. cit. p. 162, t. 20. figg. 4, 4 *a–d* (♂) [1].

Type ♂, deuterotype ♀, in coll. Godman & Salvin. Total length, ♂ 1·25, ♀ 2 millim.

Colour brown in the male, black in the female; both sexes with brilliant shiny green reflections.

*Hab.* Mexico, Teapa (*H. H. Smith* [1]); Costa Rica (*Sarg*).

The following genus was not detected in the collection till it was too late for insertion in the proper place in the group Amyceæ (*anteà*, p. 187):—

## TOMIS, gen. nov.

Type *T. palpalis*, sp. n. Mexico.

The type-species resembles *Titanattus* in the strong recurvature of the anterior row of eyes, but the clypeus is much less than one-third of the diameter of an anterior central eye. The genus enters the synoptic table on p. 187, which must be thus modified for its reception :—

B.—i. Mandibles in both sexes with from 2—5 or 6—5 teeth, or 4 on upper margin only.
  *a*. Anterior row of eyes strongly recurved.
    *a'*. Clypeus in the male not less than one full diameter of an anterior central eye . . . . . TITANATTUS, Peckh.
    *b'*. Clypeus in the male less than one-third the diameter of an anterior central eye . . . . . TOMIS, gen. nov.

### 1. **Tomis palpalis,** sp. n. (Tab. XXIX. figg. 1, 1 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

Small eyes midway between the lateral anteriors and lateral posteriors. Mandibles with four teeth forming a coalescent group on the upper margin; no teeth on the lower margin. Tibiæ i. and ii. with 2—2—2 spines beneath; protarsi i. and ii. with 2—2 spines beneath, iii. and iv. with two ring-like clusters of spines, a basal and an apical group. Palpus very broad and compressed; bulb with a spine springing from near the base on the outer side, its apex reaching the apical portion of the tarsal sheath; tibia with a short sharp spur at its outer apex. Carapace clothed with orange-brown and white hairs, with a more distinct marginal and central posterior band of grey hairs. Abdomen clothed with orange-brown and white hairs, with a more conspicuous anterior central dorsal dentated band, followed by three or four ⌒-shaped bars of grey hairs, and a large lateral grey blotch towards the apex on each side; ventral area fawn-colour. Legs yellow-brown, more or less suffused with black. Palpi margined with black, and clothed with orange-brown hairs.

*Hab.* MEXICO, Teapa (*H. H. Smith*).

This species is related to the group containing *Titanattus*, *Sidusa*, and *Amycus* (*anteà*, pp. 191–219), but its generic position is very difficult to determine precisely.

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The following genera and species of Salticidæ are not represented in our collection, so that it is difficult to assign them with certainty to their correct systematic position. Copies of figures of the essential specific characters of several of them have been taken from Emerton's figures, published by Peckham:—

## HASARIUS.

*Hasarius*, E. Simon, Ann. Soc. Ent. Fr. 1871, p. 329.

Type *H. adansonii* (Aud. in Savigny). Egypt.

### Hasarius bellicosus.

*Hasarius bellicosus,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 56, t. 5. figg. 2, 2 *a* (♀)[1].

Type, ♀, in coll. Peckham. Total length 9 millim.

*Hab.* GUATEMALA, eastern part[1].

## FUENTES.

*Fuentes,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. ii. 2, p. 113 (1894).

Type *F. pertinax*, Peckh. British Honduras.

### Fuentes pertinax. (Tab. XXVIII. figg. 16, 16 *a*, *b*, ♂ ; 17, ♀.)

*Fuentes pertinax,* Peckh. loc. cit. ii. 2, p. 113, t. 11. figg. 4, 4 *a–c* (♀), 4 *d–f* (♂)[1].

Type ♂, gynetype ♂, in coll. Peckham. Total length, ♂ 5·5, ♀ 7·5 millim.

*Hab.* BRITISH HONDURAS, Belize[1].

This species, distinguishable by the two white lines down the darker abdomen which terminate in a few chevrons at the apex, evidently belongs to the group Marpisseæ, but the generic characters are not sufficiently clear from the description to enable one to place it satisfactorily.

## BALMACEDA.

*Balmaceda,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. ii. 2, p. 100 (1894).

Type *B. picta*, Peckh. Guatemala.

The two species referred to this genus apparently both belong to the group Marpisseæ.

### Balmaceda picta. (Tab. XXVIII. figg. 18, 18 *a*, *b*, ♂ ; 19, 19 *a*, ♀.)

*Balmaceda picta,* Peckh. loc. cit. p. 101, t. 10. figg. 1, 1 *a–c* (♀), 1 *d–f* (♂)[1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 6, ♀ 6·8 millim.

*Hab.* GUATEMALA, east coast[1].

### Balmaceda punctata. (Tab. XXIX. figg. 2, 2 *a*, ♂ ; 3, ♀.)

*Balmaceda punctata,* Peckh. loc cit. p. 102, t. 8. figg. 8, 8 *a* (♀), 8 *b*, 8 *c* (♂)[1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 5, ♀ 6 millim.

*Hab.* CENTRAL AMERICA[1].

## NAGAINA.

*Nagaina,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 54 (April 1896).

Type *N. incunda*, Peckh. Guatemala.

Peckham places this genus near *Dendryphantes*, so that it probably belongs somewhere near *Metaphidippus* or the group here called Phidippeæ.

**Nagaina incunda.** (Tab. XXIX. fig. 4, ♀.)

*Nagaina incunda,* Peckh. loc. cit. p. 55, t. 4. figg. 10, 10 *a–c* (♀)[1].

Type, ♀, in coll. Peckham. Total length 4 millim.

*Hab.* GUATEMALA[1].

## BAGHEERA.

*Bagheera*, Peckham, Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 88 (April 1896).

Type *B. kiplingi*, Peckh. Guatemala.

This genus is said by Peckham to be allied to *Anoka*, which I have placed in the group Phidippeæ.

**Bagheera kiplingi.** (Tab. XXIX. figg. 5, 5 *a*, *b*, ♂.)

*Bagheera kiplingii,* Peckh. loc. cit. p. 88, t. 7. figg. 1, 1 *a–d* (♂)[1].

Type, ♂, in coll. Peckham. Total length 4·4 millim.

*Hab.* GUATEMALA, eastern district[1].

## SHIRA.

*Shira,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 85 (April 1896).

Type *S. designata*, Peckh. Panama.

Peckham regards this genus as allied to *Anoka* and *Ashtabula*; it probably belongs, therefore, to the group Phidippeæ.

**Shira designata.** (Tab. XXIX. fig. 6, ♀.)

*Shira designata,* Peckh. loc. cit. p. 86, t. 6. fig. 12 (♀)[1].

Type, ♀, in coll. Peckham. Total length 6·9 millim.

*Hab.* PANAMA[1].

## AVITUS.

*Avitus,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 57 (April 1896).

Type *A. dioleni,* Peckh. Panama.

Peckham states that this genus belongs to Simon's group "Diolenii" (Compt. Rend. Soc. Ent. Belg. 1884, p. ccxxv).

**Avitus dioleni.** (Tab. XXIX. figg. 7, 7 *a*, ♂.)

*Avitus diolenii,* Peckh. loc. cit. t. 5. figg. 3, 3 *a–c* (♂)[1].

Type, ♂, in coll. Peckham. Total length 7 millim.

*Hab.* PANAMA[1].

## AKELA.

*Akela,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 94 (April 1896).

Type *A. charlottæ,* Peckh. Guatemala.

This genus belongs, according to Peckham, to the group Homalatteæ.

### Akela charlottæ. (Tab. XXIX. figg. 8, 8 *a*, ♂.)

*Akela charlottæ,* Peckh. loc. cit. p. 95, t. 7. figg. 7, 7 *a–d* (♂)[1].

Type, ♂, in coll. Peckham. Total length 3·8 millim.

*Hab.* Guatemala[1].

## TULPIUS.

*Tulpius,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 86 (April 1896).

Type *T. hilarus,* Peckh. Guatemala.

Peckham refers this genus to the Homalatteæ, but says that it most closely resembles *Sadala* (*Cotinusa*, Simon).

### Tulpius hilarus. (Tab. XXIX. fig. 9, ♂.)

*Tulpius hilarus,* Peckh. loc. cit. p. 87, t. 6. fig. 10 (♀), t. 6. fig. 10 *a*, t. 7. figg. 10, 10 *a* (♂)[1].

Type ♂, gynetype ♀, in coll. Peckham. Total length, ♂ 4, ♀ 4 millim.

*Hab.* Guatemala[1].

## MESSUA.

*Messua,* Peckham, Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 93 (April 1896).

Type *M. desidiosa,* Peckh. Panama.

According to Peckham, this genus belongs to the Homalatteæ.

### Messua desidiosa. (Tab. XXIX. fig. 10, ♀.)

*Messua desidiosa,* Peckh. loc. cit. p. 94, t. 6. figg. 9, 9 *a*, t. 7. figg. 5, 5 *a* (♀)[1].

Type, ♀, in coll. Peckham. Total length 5 millim.

*Hab.* Panama[1].

## COTINUSA.

*Sadala,* Peckham, Trans. Wisc. Acad. Sci. vii. p. 52 (1888) (nomen præocc.).
*Cotinusa,* E. Simon, Ann. Soc. Ent. Belg. 1900, p. 389 (Oct. 20).

Type *C. bisetosa,* Simon. Venezuela.

### Cotinusa distincta. (Tab. XXIX. fig. 12, ♂ *.)

*Sadala distincta,* Peckh. Trans. Wisc. Acad. Sci. vii. p. 53, t. 1. fig. 70 (♂), t. 6. fig. 76 (♂)[1].

Type, ♂, in coll. Peckham. Total length 5·3 millim.

*Hab.* Mexico[1].

* The generic name is incorrectly written *Continusa* on the Plate.

## EPIBLEMUM.

*Epiblemum,* Hentz, Amer. Journ. Sci. (1) xxi. p. 108 (1832).

Type *E. faustum*, Hentz. N. America.

### Epiblemum albocinctum. (Tab. XXIX. fig. 13, ♀.)

*Epiblemum albocinctum,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 84, t. 6. figg. 8, 8 *a* (♀) (April 1896) [1].

Type, ♀, in coll. Peckham. Total length 4·9 millim.

*Hab.* North America, Texas, La Blanca [1].—Mexico, Refugio (*Townsend* [1]); Central America [1].

## EUOPHRYS.

*Euophrys,* C. Koch, in Herr.-Schäff. Deutschl. Ins. Heft 123.

Type *E. frontalis* (Walck.). Europe.

### Euophrys newtoni. (Tab. XXIX. fig. 14, ♀.)

*Euophrys newtonii,* Peckh. loc. cit. p. 64, t. 5. figg. 10, 10 *a* (♀) [1].

Type, ♂, in coll. Peckham. Total length 6·5 millim.

*Hab.* Central America [1].

### Euophrys ysabali. (Tab. XXIX. fig. 15, ♂.)

*Euophrys ysobolii* (sic), Peckh. loc. cit. p. 65, t. 5. figg. 11, 11 *a* (♂) [1].

Type, ♂, in coll. Peckham. Total length 5 millim.

*Hab.* Guatemala, Yzabal [1].

## ERIS.

*Eris,* C. L. Koch, Die Arachn. xiii. p. 189 (1846).

### Eris (?) barbipes. (Tab. XXIX. figg. 11, 11 *a*, ♀.)

*Eris* (?) *barbipes,* Peckh. Trans. Wisc. Acad. Sci. vii. p. 55, t. 4. figg. 38, 38 *a* (♀) (1888) [1].

Type, ♀, in coll. Peckham. Total length 6·8 millim.

*Hab.* Mexico [1].

Peckham quotes this species as doubtfully belonging to the genus *Eris*, this latter being placed by him, in 1895, amongst the Homalatteæ.

## ATTUS.

*Attus,* Walckenaer, Tabl. des Aran. p. 22 (1805).

### Attus infuscatus.

*Attus infuscatus,* Peckh. Occas. Papers Nat. Hist. Soc. Wisc. iii. 1, p. 73, t. 6. figg. 5, 5 *a* (♀) (1896) [1].

Type, ♀, in coll. Peckham. Total length 6 millim.

*Hab.* Panama [1].

## Attus cautus.

*Attus cautus*, Peckh. Trans. Wisc. Acad. Sci. vii. p. 92 (♂) (1888) [1].

Type, ♂ juv., in coll. Peckham. Total length 4·5 millim.

*Hab.* Mexico [1].

No figure is given of this species, which is based upon a young male.

## Attus aurantius.

*Salticus aurantius*, Lucas, Ann. Soc. Ent. Fr. ii. p. 480, t. 18. fig. 3 (♀) (1833) [1].
*Attus aurantius*, Walck. Ins. Apt. iv. p. 420 [2].

*Hab.* North America [2].—Mexico [2]; Guatemala [1 2].

The figure given by Lucas perhaps represents the variety of *Paraphidippus chrysis*, which has an orange continuous marginal border.

## Attus limbatus.

*Salticus limbatus*, Lucas, Ann. Soc. Ent. Fr. ii. p. 481 (♀) (1833) [1].
*Attus limbatus*, Walck. Ins. Apt. iv. p. 416 (♂) [2].

*Hab.* Guatemala [1 2].

## Attus fuscipes.

*Attus fuscipes*, Walck. Ins. Apt. iv. p. 428 [1].
*Phidippus fuscipes*, C. L. Koch, Die Arachn. xiii. p. 153, fig. 1209 (♂) [2].

*Hab.* Mexico [1 2].

## Attus amabilis.

*Attus amabilis*, Walck. Ins. Apt. iv. p. 428 [1].
*Alcmena amabilis*, C. L. Koch, Die Arachn. xiii. p. 178, fig. 1228 (♂) [2].

*Hab.* Mexico [1 2].

## Attus strenuus.

*Attus strenuus*, Walck. Ins. Apt. iv. p. 428 [1].
*Hyllus strenuus*, C. L. Koch, Die Arachn. xiii. p. 164, fig. 1218 (♂) [2].

*Hab.* Mexico [1 2].

## Attus pugnax.

*Attus pugnax*, Walck. Ins. Apt. iv. p. 428 [1].
*Hyllus pugnax*, C. L. Koch, Die Arachn. xiii. p. 168, fig. 1221 (♂) [2].

*Hab.* Mexico [1 2].

### Attus nitens.

*Phidippus nitens*, C. L. Koch, Die Arachn. xiii. p. 154, fig. 1210 (♂) [1].
*Attus nitens*, Walck. Ins. Apt. iv. p. 428 [2].

*Hab.* MEXICO [1 2].

## PLEXIPPUS.

*Plexippus*, C. L. Koch, Die Arachn. xiii. p. 93 (1846).

### Plexippus tæniatus.

*Plexippus tæniatus*, C. L. Koch, loc. cit. p. 121, fig. 1182 [1].

*Hab.* MEXICO [1].

## HABROCESTUM.

*Habrocestum*, E. Simon, Arachn. Fr. iii. p. 131 (1876).

### Habrocestum dorsale.

*Habrocestum dorsalis*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 287, t. 7. fig. 12 (♂) [1].

*Hab.* MEXICO, Hermosillo in Sonora [1].

Judging from the figure of the palpus, one would suspect that this spider does not belong to the genus *Habrocestum*.

## MÆVIA.

*Mævia*, C. L. Koch, Die Arachn. xiv. p. 69 (1848).

### Mævia coronigera.

*Euophrys coronigera*, C. L. Koch, Die Arachn. xiii. p. 221, fig. 1266 (♀) [1].
*Mævia coronigera*, Peckh. Trans. Wisc. Acad. Sci. xiii. p. 344 [2].

Type, ♀, in Mus. Berol. Total length 4 millim.

*Hab.* GUATEMALA [2].—GUIANA, Cayenne [2]; TRINIDAD [2]; ANTILLES.

## AMYCUS (*anteà*, p. 191).

### Amycus flavolineatus.

*Attus flavolineatus*, Walck. Ins. Apt. iv. p. 428 [1].
*Amycus flavolineatus*, C. L. Koch, Die Arachn. xiii. p. 185, fig. 1234 (♂) (1846) [2].

*Hab.* MEXICO [1 2].

## HABRONATTUS (*anteà*, p. 241).

### Habronattus simplex.

*Pellenes simplex*, Peckh. Bull. Wisc. Nat. Hist. Soc. (4) i. p. 220, t. 1. fig. 12 (♀) (June 1901) [1].

Type, ♀, in coll. Peckham. Total length 5·5 millim.

*Hab.* Mexico, Vera Cruz [1].

### Habronattus placidus.

*Pellenes placidus*, Peckh. loc. cit. p. 223, t. 1. fig. 18 (♀) [1].

Type, ♀, in coll. Peckham. Total length 7 millim.

*Hab.* Mexico, Chihuahua [1].

## HOMALATTUS.

*Homalattus*, White, Ann. & Mag. Nat. Hist. vii. p. 476 (1841).

Type *H. pustulatus*, White. Sierra Leone.

### Homalattus hispidus.

*Homalattus hispidus*, Peckh. Bull. Wisc. Nat. Hist. Soc. (4) i. p. 229, t. 2. figg. 5, 5 *a* (♀) (June 1901) [1].

Type, ♀, in coll. Peckham. Total length 7 millim.

*Hab.* Mexico, San Rafael (*Townsend* [1]).

## Fam. PISAURIDÆ.

The spiders belonging to this family are so closely allied to the Agelenidæ and the Lycosidæ that it is difficult to point out any really reliable distinguishing character. The Lycosidæ, however, have no tibial spur on the male palpus, while this is always present to a greater or less extent in the species of the other two families. The species here included under the name Pisauridæ may be subdivided into various genera; but it is possible that *Cupiennius* would be better placed in the Clubionidæ under the subfamily Cteninæ. This, however, cannot be done if the possession of three tarsal claws be regarded of greater importance than that of claw-tufts. Simon holds that this "soi-disant griffe," the third claw, whose existence I have already pointed out [Ann. & Mag. Nat. Hist. (6) xx. p. 329], is merely a development of the base of the rhomboidal sclerite (*plantula*) present in *Ctenus*, and that it has no analogy with the third independent claw ("griffe impaire indépendante") of the Agelenidæ, Pisauridæ, and Lycosidæ.

An extended and minute examination of the tarsal claws of numbers of examples belonging to these and other families has convinced me that both the sclerite and the hook-like development are homologous structures. The third claw is in every case simply a *hook-like development* at the base of this sclerite, which has become atrophied

in the Clubionidæ or merely represented by a chitinous ridge, as in some Cteninæ. The sclerite itself differs in shape, however, in the Clubionidæ and the other families mentioned, being in the former a simple rhomboid, in the latter bi-excavate at the base and deeply emarginate at the apex; while the claw is more centrally situated in *Lycosa*, more basally in *Cupiennius*. In *Cupiennius* the claw-tufts and the lobes supporting them are very conspicuous, being absent in the Agelenidæ, Pisauridæ, and Lycosidæ. It has apparently been developed proportionately with the atrophy of the third claw and has materially affected the shape of the sclerite. *Cupiennius* is, so far as one is able to judge at present, intermediate between the Clubionidæ (*Ctenus*) and the Pisauridæ (*Lycoctenus*).

Note.—Figures of the tarsal claws of *Ctenus scopulatus*, Pocock (Tab. XXIX. fig. 19), *Heteropoda venatoria* * (Linn.) (Tab. XXIX. fig. 20), and *Lycosa tarentula*, Latr. (Tab. XXIX. fig. 21), have been added for comparison with those of *Cupiennius* and *Lycoctenus*.

### Genera.

A. Anterior row of eyes very strongly recurved, producing a formula similar to that in *Ctenus*.
  *a*. Tarsi having a claw-tuft at the apex on each side. Protarsi iii. and iv. scopulate beneath the apical fourth, and with a single small spine at the apex. Tarsi iii. and iv. without rows of spines beneath. Legs 1, 4, 2, 3 . . . . . Cupiennius, Simon.
  *b*. Tarsi without claw-tufts. Protarsi iii. and iv. not scopulate beneath, and with two small apical spines. Tarsi iii. and iv. with a double row of small spines beneath. Legs 4, 1, 2, 3. Lycoctenus, F. Cambr.

B. Anterior row of eyes straight, procurved or only slightly recurved, not "ctenoid."
  i. Tarsi slender, but neither very long nor flexible.
    *a**. Lower margin of the fang-groove with four teeth . . . . Dolomedes, Latr.
    *b**. Lower margin of the fang-groove with three teeth.
      1. The transverse space occupied by the anterior row of eyes distinctly wider than that occupied by the central posterior pair. Central posteriors nearer to each other than to the laterals, not more than one diameter apart.
        $a^1$. Palpal bulb of male with a very long stylum, not spirally coiled but free, curving across the bulb; with also on the inner side a long, compressed, sinuous process, and on the outer side a long slender canula, finely and transversely rugulose, usually dilate at the apex . . . Thaumasia, Perty.
        $b^1$. Palpal bulb of male with a long stylum spirally curled, not free; without any canula on the outer side . . . Tinus, gen. nov.

* *Antè*, p. 120.

2. The transverse space occupied by the anterior row of eyes not wider than that occupied by the central posterior pair. Central posteriors much further from each other than from the laterals, much more than one diameter apart . . ENNA, O. P.-Cambr.

ii. Tarsi very long, slender, and flexible.

$a^2$. Legs 4, 2, 1, 3. Anterior row of eyes recurved. Tibiæ i. and ii. with 5 pairs of spines beneath, the last pair small and apical. Protarsi i. and ii. with 4 pairs of spines beneath . . TRECHALEA, Thorell.

$b^2$. Legs 4, 2, 3, 1. Anterior row of eyes straight. Tibiæ i. and ii. with 9 or 10 pairs of spines beneath, the last pair not apical. Protarsi i. and ii. with 8 or 9 pairs of spines beneath. SYNTRECHALEA, gen. nov.

NOTE.—The spiders here included under *Tinus* appear to be very nearly allied to *Drances*, E. Simon *; but in the description of that genus it is expressly stated that the small apical spines beneath tibiæ i. and ii. are *absent*. In mentioning the height of the clypeus in *Thaumasia* and *Drances*, two very closely allied genera, M. Simon compares it with "area oculorum mediorum" in *Thaumasia*, and "oculis mediis anticis" in *Drances*. It is impossible to compare the characters of the genera from such definitions. *Enna* is, so far as one can gather, identical with *Hesydrus*, Simon (Sect. $2^a$). The type, *H. palustris*, Simon, belongs to Sect. $1^a$, so that the spiders under Sect. $2^a$ have no generic name.

## CUPIENNIUS.

*Cupiennius*, E. Simon, Bull. Soc. Zool. Fr. xvi. p. 109 (1891).

Type *C. getazi*, E. Simon. Costa Rica.

Tarsal claws 3. Tibiæ i. and ii. with four pairs (2—2—2—2) of spines beneath, including the apical pair; also two lateral spines on each side (1—1) in both ♀ and ♂. No dorsal spines on tibiæ i., ii., iii., or iv. No spines on patellæ i., ii., iii., or iv. ♀, present on i., ii., iii. ♂. Protarsi i. and ii. with three pairs (2—2—2) of spines, and i., ii., iii., iv. with a single, small, stout spine at the apex, beneath. Legs 1–2, 4, 3. Lower margin of fang-groove with four teeth, upper with three. Second row of eyes procurved. Lateral anteriors midway between posterior centrals and posterior laterals in the ♀, much nearer the former in the ♂, but not in the same line. Central anteriors one-third smaller than posteriors. Ocular quadrangle as broad as long, much narrower in front. Clypeus equal to one and a half diameters of anterior centrals in ♀, one diameter in ♂. A thick scopula present beneath tarsi and protarsi i. and ii., and apex of protarsus iii., absent beneath protarsus iv., present beneath tarsi iii. and iv. Patella and tibia i. much longer than patella and tibia iv.

The species known to me may be distinguished as follows:—

### *Males.*

A. Size larger: total length 32 millim., carapace 14 millim. Femora i., ii., iii., and iv. with a median pair of dusky blotches (sometimes perhaps obsolete). Central unca of palpal bulb evenly rounded behind. Abdomen with a broad, black, ventral band . . . . . *sallei*, Keys.

B. Size smaller: total length 15–20 millim., carapace 6·5–7 millim. Femora of legs unicolorous, not blotched beneath with black. Central unca of palpal bulb much produced behind. Abdomen either without or with a very narrow, central, dusky band . . . . . *foliatus*, sp. n.

* The name *Drances*, Simon (1898), is preoccupied in Coleoptera (1889).

*Females.*

A. Size much larger: total length 23–33 millim., carapace 10–13 millim.
  i. Size larger: carapace 14 millim. long. Abdomen with a broad, black, longitudinal, ventral band. Femora i., ii., iii., and iv. marked, especially beneath, with broad black blotches . . . . . *sallei.*
  ii. Size smaller: carapace 10–11 millim. long. Abdomen unicolorous rufous-yellow beneath. Femora of legs not blotched with black.
    *a.* Femora i. and ii., and iii. and iv. less conspicuously, clothed with short bright crimson rust-red hairs beneath . . . . . *coccineus,* sp. n.
    *b.* Femora of legs with numerous minute brown speckles beneath, and with a narrow dusky apical annulus.
      *a'.* Carapace, abdomen, and legs clothed with orange rust-red hairs . *getazi,* E. Simon.
      *b'.* Carapace, abdomen, and legs clothed with grey hairs . . . . . *griseus,* sp. n.

B. Size still smaller: total length 10–18 millim., carapace 5–7·5 millim. Ventral area of abdomen with a very narrow, central, longitudinal, black band, often indistinct (perhaps sometimes obsolete). Vulva scarcely longer than broad, central tongue anteriorly dilate, scarcely narrower than the lateral pieces . . . . . *foliatus.*

## 1. **Cupiennius sallei.** (Tab. XXIX. figg. 16, 16 *a–c*, ♂; 17, 17 *a–i*, ♀.)

*Ctenus saléi* *, Keyserling, Verh. zool.-bot. Ges. Wien, xxvi. p. 685, t. 2 (8). fig. 53 (♀) (1877) [1].
*Cupiennius oculatus,* E. Simon, Bull. Soc. Zool. Fr. 1891, p. 110 (♀) [2].
*Ctenus mordicus,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 100, t. 13. figg. 6, 6 *a* (♀), 7, 7 *a–e* (♂) (1892) [3].

Type, ♀, of *C. saléi* *, Keys., in Mus. Brit., total length 27 millim.; of *C. oculatus,* E. Simon (♀), in coll. Simon, total length 26 millim.; of *C. mordicus,* O. P.-Cambridge (♂), gynetype (♀ juv.), in coll. Godman & Salvin, total length (♂) 21 millim.

Examples in coll. Godman & Salvin, ♂ 32, ♀ 33 millim.

♂. Carapace entirely clothed with very short silky-grey pubescence, with a broad, central, longitudinal, parallel-sided, darker band, and a marginal black line extending from the lateral posterior eyes to the base. Legs clothed with thick, silky, golden-grey hairs; femora i., ii., iii., iv. dark flesh-colour, beneath with a central pair of black blotches, more distinct on i. and ii. Abdomen olive-brown, clothed with short black and golden-grey hairs or pubescence; ventral area with a broad, central, longitudinal, black band. Mandibles clothed with golden-grey hairs in longitudinal bands, leaving black interspaces.

♀. Coloured like the male, but much darker, the black pubescence being predominant. Abdomen rich orange-mahogany, with a pale, central, basal, dorsal, narrow, longitudinal band extending to the middle, followed on each side by two dull orange rounded blotches; ventral area as in the male.

Palpi of male:—Tibia four times longer than broad, with a short, simple, bluntly-pointed spur on the outer side. Palpal organs consisting of a dark central "unca," its apex pointed and compressed, evenly rounded behind, not produced. On the inner side of the bulb is a broad, membranous, dull white sheath. These portions of structure vary slightly in individuals.

Vulva of female longer than wide, with two broader, lateral, chitinous pieces and a narrower, central, parallel-sided, pale, tongue-like piece, its surface finely corrugated.

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* [Named after the French traveller, A. Sallé, and therefore incorrectly written.—Ed.]

*Hab.* Mexico, near Vera Cruz and Cordova (*Sallé* [1]), Teapa, Orizaba (*H. H. Smith*); Guatemala [2], Salina de Nueve Cerros (*Sarg* [3]); Honduras; Costa Rica (*Rogers*); Panama, Chiriqui (*Champion*).

### 2. **Cupiennius coccineus,** sp. n. (Tab. XXIX. fig. 18, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 23 millim.

Carapace and legs clothed with golden-grey pubescence and hairs. Sternum and coxæ of legs pale chocolate-brown. Femora i. and ii., and iii. and iv. less conspicuously, clothed beneath with bright crimson rust-red hairs. Abdomen variable in colour: unicolorous brown or with a dorsal pattern very similar to that of the male of *C. sallei* (see full figure); ventral area unicolorous, entirely clothed with golden-grey hairs and pubescence. Mandibles black, clothed with three or four lines of pale hairs. Vulva similar in general character to that of other species of the genus, but the central tongue-like piece is conspicuously dilate behind.

*Hab.* Panama, Volcan de Chiriqui (*Champion*).

### 3. **Cupiennius getazi.**

*Cupiennius getazi,* E. Simon, Bull. Soc. Zool. Fr. 1891, p. 110 (♀) [1].

Type, ♀, in coll. E. Simon. Total length 25 millim.

*Hab.* Costa Rica [1] (*Mus. Brit.*).

The vulva in this and the following species is shrunk and distorted, and therefore its shape cannot be very well made out in the dried specimens before me.

### 4. **Cupiennius griseus,** sp. n.

Type, ♀, in Mus. Brit. Total length 23 millim.

*Hab.* Costa Rica (*Underwood*).

This species is precisely similar to the last, but is clothed with grey, instead of fulvous-red, hairs.

### 5. **Cupiennius foliatus,** sp. n. (Tab. XXX. figg. 1, 1 *a*, ♂; 2, 2 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 15, ♀ 18 millim.

♂ ♀. Carapace, sternum, and legs pale yellow, clothed with fine golden-grey hairs and pubescence; the carapace with a broad, central, very slightly darker band, the margins also often dusky. Legs unicolorous orange-yellow. Abdomen clothed with golden-grey hairs, having a broad, darker, dorsal band, deeply outlined with black, extending to just beyond the middle, followed by very dusky, transverse, central bars, with a pair of pale spots on each side. Ventral area dull yellow-brown, with a very narrow, black, longitudinal, central bar.

Palpus of male:—Tibia four times longer than broad, with a short, external, inferior, bluntly-pointed spur, very similar to that of *C. sallei*, but the central "unca" has a cusp behind.

Vulva of female longer than broad, the central tongue-like piece nearly or quite as wide as the lateral portions, dilate anteriorly.

*Hab.* Nicaragua (*Dr. Rothschuh*); Costa Rica (*Rogers*); Panama, Bugaba (*Champion*).

## LYCOCTENUS.

*Lycoctenus*, F. P.-Cambridge, Ann. & Mag. Nat. Hist. (6) xix. p. 95 (1897).

Type *L. brunneus*, F. P.-Cambridge. Lower Amazons.

Eye-formula "ctenoid," second row procurved; lateral anteriors midway between the central and lateral posteriors. Lower margin of the fang-groove with four stout teeth (sometimes three only). Tibiæ i. and ii. with 2—2—2—2 spines beneath; protarsi i. and ii. with 2—2—2 spines and a single, central, apical spine, and iii. and iv. with two apical spines, beneath. Protarsi and tarsi i. and ii. thickly scopulate beneath; tarsi iii. and iv. alone scopulate, and also with a double row of short spines beneath.

This genus is possibly synonymous with *Ancylometes*, Bertkau.

### 1. **Lycoctenus bogotensis.** (Tab. XXX. figg. 3, 3 *a*, ♂; 4, 4 *a–c*, ♀.)

*Ctenus bogotensis*, Keyserling, Verh. zool.-bot. Ges. Wien, xxvi. p. 684, t. 2 (8). fig. 54 (♀) (1877) [1].

*Lycoctenus bogotensis*, F. P.-Cambr. Ann. & Mag. Nat. Hist. (6) xix. p. 98, t. 4. figg. ii. b, ii. d (♀) (1897) [2].

*Lycoctenus colombianus*, F. P.-Cambr. loc. cit. p. 99, t. 4. fig. i. 4 (♂) [3].

Type, ♀, in Mus. Brit., deuterotype, ♂, in coll. Godman & Salvin; of *L. colombianus* (♂) in Mus. Brit. Total lengths of examples in coll. Godman & Salvin, ♂ 22, ♀ 32 millim.

*Hab.* Panama, Bugaba (*Champion*).—Colombia [3], Sta. Fé de Bogotá [1 2].

## DOLOMEDES.

*Dolomedes*, Latreille, Nouv. Dict. xxiv. p. 135, column 2, line 32 (1804).

Type *D. marginatus* (De Geer) = *fimbriatus*, Clerck. Europe.

I have not seen any examples of this genus from Central America, but the spiders here described under *Lycoctenus* are very similar in general appearance to the type of *Dolomedes*, though the eye-formula is different.

### 1. **Dolomedes minor.**

*Dolomedes minor*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 277, t. 17. fig. 6 (♂ ♀) [1].

Type ♂, gynetype ♀, in coll. Calif. Acad. Sci. Total length, ♂ 10, ♀ 14 millim.

*Hab.* Mexico, Tepic [1].

## THAUMASIA.

*Thaumasia*, Perty, Del. Anim. Art. Bras. p. 192 (1833).

Type *T. senilis*, Perty. Brazil.

Anterior row of eyes straight or slightly procurved, centrals much larger, almost in contact with each other and with the laterals; posterior centrals less than a diameter apart, further from the laterals. Clypeus varying in size from three times that of an anterior central eye to less than a diameter of one. Both margins of the fang-groove tridentate, the posterior tooth on the lower margin more remote from the others. Tibiæ i. and ii. with 2—2—2—2 spines beneath, besides laterals on each side, no small apical

spines. Protarsi i. and ii. with 2—2—2 very long spines beneath, besides laterals; protarsi of all four pairs of legs with a single, small, central, apical spine beneath. Tarsi not flexible. Legs 1, 4, 2, 3, or 1–2, 4, 3.

The two species known to me may be distinguished as follows:—

*Males.*

*a*. Clypeus as high as three diameters of an anterior central eye. Anterior branch of tibial spur long (one-third the length of the tarsus), compressed, dilate, geniculate basally, very slender anteriorly, sinuously curved, its apex finely pointed, gently curving downward. Small central basal lobe of bulb not bifid, rounded-rectangular, its inner anterior angle short . . . *velox*, E. Simon.

*b*. Clypeus not higher than one diameter of an anterior central eye. Anterior branch of tibial spur long (one-fourth that of the tarsus), very broad, compressed throughout, its apex bluntly pointed, forming a broad hook abruptly curved downward. Small central basal lobe of bulb bifid, outer branch larger, inner branch curved and very sharp . . . . . *uncata*, sp. n.

Note.—More material would probably show great individual variation in these characters. Unfortunately, we have but two males of *T. velox* from Central America. A specimen of the latter taken by myself on the Amazons differs somewhat from them, especially in the shape of the central lobe of the palpus. It is probable that this portion of the bulb will be found to be very variable in shape. If not, the Guatemalan form may belong to a different species. I have identified *T. velox*, Simon, from his description and from the above-mentioned male from the Amazons in the British Museum.

### 1. **Thaumasia velox.** (Tab. XXX. figg. 5, 5 *a–c*, ♂.)

*Thaumasia velox*, E. Simon, Ann. Soc. Ent. Belg. xlii. p. 18 (1898) [1].

Type, ♂, in coll. E. Simon. Total length 8 millim.

Carapace and legs yellow, the former broadly margined with white pubescence. Abdomen olive-brown above, with a short, anterior, dorsal, central, pale band.

Palpus of male:—Patella half as long as the tibia; the latter with a bibranchiate spur, its lower or outer posterior branch short, divergent, pointed at its apex, and concave-lamelliform; the upper or inner anterior branch much longer, extending one-third the length of the tarsus, sinuous, the base compressed and concave, the apex bent outward, strongly curved downward, very slender and sharply pointed. The small basal lobe is rounded-rectangular, its inner anterior angle sharper. The other long lobes, the canula, and the stylum do not differ sufficiently in the two species of the genus before me to merit description.

*Hab.* Guatemala (*Sarg*).—Amazons [1].

The two specimens from Guatemala, from which the above description is taken, are either identical with *T. velox*, Simon, or belong to a very closely allied form.

### 2. **Thaumasia uncata,** sp. n. (Tab. XXX. figg. 6, 6 *a*, ♂; 7, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 7, ♀ 9 millim.

Carapace and legs yellow; abdomen darker in both sexes, exhibiting numerous cretaceous granules and a clear, dorsal, anterior, lanceolate, heart-shaped mark.

Palpus of male:—Patella about half as long as the tibia, the latter having a bibranchiate apical spur, the posterior branch short, divergent, lamelliform, concave, the anterior broad at the base, narrowing abruptly,

again widening along the inner margin, evenly rounded on the outer, or upper, margin, terminating in a broad hook, its point directed downward. The basal lobe is long and conical, with a second small conical projection at its base on the outer side.

Vulva of female consisting of a pair of large, convex, adjacent lobes, broader in front, narrower behind, not quite reaching the genital rima, exhibiting on their outer margin a long, sinuous, black mark, and often another beneath, marking the convolutions of the oviduct.

*Hab.* Panama, Bugaba (*Champion*).

## TINUS, gen. nov.

Type *T. nigrinus*, sp. n. (♂). Central America.

Anterior row of eyes straight or slightly procurved; centrals larger, barely half a diameter apart, almost in contact with the laterals; posterior centrals less than one diameter apart, further from the laterals. Clypeus almost double the size of an anterior central eye. Both margins of the fang-groove tridentate, the teeth on the lower margin being equal and equidistant. Tibiæ i. and ii. with 2—2—2 spines beneath and a pair of small apical spines, besides lateral spines on both sides. Protarsi i. and ii. with 2—2—2 spines beneath, besides laterals; protarsi of all four pairs of legs with a single small apical spine beneath. Tarsi not flexible. Legs 4, 2, 1, 3.

The species known to me may be recognized as follows:—

*Males.*

*a*. Tibia of palpus not much longer than the patella; tibial spur not bibranchiate; spur broad, pointed, concave, with a small recurving barb on the upper margin. Outer lobe of bulb much narrower, blunt-pointed at the apex. Central lobe of bulb consisting of five or six pale discs . . . . . *nigrinus*, sp. n.

*b*. Tibia of palpus three or four times longer than the patella; tibial spur bibranchiate; upper spur slender, curving forward, lower spur without the recurving barb. Outer lobe of bulb much broader, rounded-dilate at the apex. Central lobe of bulb consisting of three or four pale discs . . . . *tibialis*, sp. n.

*Females.*

*a*. The two convex vulval lobes divided anteriorly by a broad deep circular cavity; central tongue-like process larger, overhanging the cavity, connected with a sinuous, pale, basal piece lying on the floor of the cavity . . . . . *tibialis*.

*b*. The two convex vulval lobes not divided anteriorly by a circular cavity.

1. Size much larger: length 15 millim. Central tongue of the vulva elongate, concave above, pedunculate . . . . . *nigrinus*.
2. Size much smaller: length 7 millim. Central tongue of the vulva represented by a small, black, convex, transverse piece, not pedunculate . . . *minutus*, sp. n.

### 1. **Tinus nigrinus**, sp. n. (Tab. XXX. figg. 8, 8 *a*, *b*, ♂; 9, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 11, ♀ 15 millim.

♂. Legs unicolorous yellow. Carapace yellow-brown, with a broad, darker, central band, its margins scalloped, having a very narrow, central, yellow stripe. Mandibles red-brown, suffused with black in front, basally. Abdominal pattern obliterate.

♀. Legs yellow-brown, femora and other segments more or less annulate with black. Carapace as in the male. Abdomen yellow, with a broad, black, central, dorsal band, slightly emarginate on each side before the

middle and very deeply emarginate just behind it, then narrowed to the apex. Ventral area unicolorous yellow.

Palpus of male:—Tibia only slightly longer than the patella, without any upper branch to the tibial spur. Tibial spur broad, pointed, concave, with a small recurved barb on the upper margin. Outer lobe of bulb narrow, bluntly pointed at the apex. Central portion of bulb consisting of a series (five or six) of pale disc-like lobes, the outermost very elongate and extending forward; a stout spine (or stylum), spirally curled, lies at the apex of the bulb within the tarsal cavity.

Vulva of female consisting of two large, broad, adjacent lobes, having a small, central, anterior, oval, concave, tongue-like process, but no large concavity.

*Hab.* Guatemala (*Sarg*).

### 2. **Tinus tibialis,** sp. n. (Tab. XXX. figg. 10, 10 *a*, *b*, ♂ ; 11, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 11, ♀ 15 millim.

The coloration and general characters, so far as one can judge from the two examples received, are almost precisely similar to those of *T. nigrinus*; but the vulva and palpus of the male are very different in form.

Palpus of male:—Similar in general character to that of *T. nigrinus*, but the tibia is three or four times longer than the patella, and has a long, slender, curved upper branch to the tibial spur; the lower branch is concave and pointed at the apex, but has not a recurved barb. The outer lobe of the bulb is much broader than in *T. nigrinus*, being broadly rounded at the apex. The central series of discs are similar, but not so numerous (3 or 4) as in the last-mentioned species; the spiral spine is very similar in form.

Vulva of female consisting of two large lobes, in contact behind, but divided anteriorly by a deep broad concavity, in the centre of which lies a convex, rounded, lid-like process, divided backward, connected with an internal, central, pale, sinuous process, lying on the floor of the cavity.

*Hab.* Mexico, Cuernavaca (*H. H. Smith*).

### 3. **Tinus minutus,** sp. n. (Tab. XXX. fig. 12, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

Carapace and legs yellow, the former darker, with a narrow central and a single lateral paler band on each side. Abdomen coloured as in the other species of the genus.

Vulva similar in general character to that of *T. nigrinus* and *T. tibialis*, but with a narrow concavity in the anterior half, in the centre of which lies a small, transverse, black, convex, chitinous piece.

*Hab.* Mexico, Teapa (*H. H. Smith*).

## ENNA.

*Enna*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 232 (1897).

Type *E. velox*, O. P.-Cambridge. Central America.

Anterior row of eyes straight or slightly recurved; centrals larger, scarcely one-half of a diameter apart, almost in contact with the laterals; posterior centrals at least one and a half diameters apart, rather over half a diameter from the laterals. Clypeus as high as one and a half diameters of an anterior central eye. Both margins of the fang-groove tridentate, the teeth on the lower one equal and equidistant. Tibiæ i. and ii. with 2—2—2 spines beneath and a pair of small apical spines, besides laterals on both sides. Protarsi i. and ii. with 2—2—2 spines beneath, besides laterals; protarsi of all four pairs of legs with a single, small, central, apical spine beneath. Legs 4 (1, 2), 3. Tarsi not flexible.

### 1. **Enna velox.** (Tab. XXX. figg. 13, 13 *a*, *b*, ♂ ; 14, ♀.)

*Enna velox*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 232, t. 30. figg. 2, 2 *a–d* (♂), 3, 3 *a*, *b* (♀)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 9, ♀ 11 millim.

Palpus of male:—Tibia very broad, half as broad as long, much wider than the tarsus, three times longer than the patella; tibial spur forming a large, broad, concave, lamelliform piece, its apex minutely bifid, the upper branch acute, dentiform, the lower one broad, rounded.

Vulva of female consisting of a transverse oval area, with a posterior, central, oval-transverse, convex, tongue-like piece, flanked on each side by a black chitinous piece, involuted behind, their surface finely and spirally grooved.

*Hab.* Mexico, Teapa (*H. H. Smith* [1]).

### 2. Enna jullieni.

*Hesydrus jullieni,* E. Simon, Ann. Soc. Ent. Belg. xlii. p. 20 (1898) [1].

Type, ♀, in coll. E. Simon. Total length 10 millim.

*Hab.* Panama (*Jullien* [1]).—Venezuela, San Esteban [1].

Simon [Hist. Nat. Araign. (2) ii. p. 315] quotes this species as the type of the first section of his genus *Hesydrus*, "tarsi pedum recti haud flexuosi," and it is therefore evidently congeneric with *Enna velox*.

I do not know this spider, nor are the characters given in the diagnosis sufficient for purposes of comparison

## TRECHALEA.

*Triclaria,* C. L. Koch, Die Arachn. xiv. p. 101 (1848) (nomen præocc.).
*Trechalea,* Thorell, Europ. Spid. p. 37 (1869).
*Perissoblemma,* O. P.-Cambridge, P. Z. S. p. 773 (1881).

Type of *Triclaria*, *T. longitarsis*, C. L. Koch, Colombia; of *Perissoblemma*, *P. thomisiforme*, O. P.-Cambridge, Amazons.

Anterior row of eyes recurved, centrals larger, half a diameter apart, almost in contact with the laterals; posterior centrals less than a diameter apart, further from the laterals. Clypeus variable in form, as high as three diameters of an anterior central eye. Both margins of the fang-groove tridentate, the teeth on the lower margin equidistant and subequal. Tibiæ i. and ii. with 2—2—2—2 spines beneath and a pair of small apical ones, besides laterals on each side. Protarsi i. and ii. with 2—2—2 spines beneath and a single, small, central, apical spine, also present on protarsi iii. and iv. Tarsi very long and flexible. Legs very long, 4, 2, 1, 3.

### *Males.*

A. Size smaller, carapace 5 millim. long; tibial spur of palpus not longer than broad, concave beneath, lamelliform . . . . . *habilis,* O. P.-Cambr.

B. Size larger, carapace 7–10 millim. long; tibial spur of palpus much longer than broad, not concave beneath or lamelliform.

*a*. Tibial spur, viewed from the outer side, strongly curved, compressed on the inner side, with a sharp cusp at the apex. Size larger: carapace 10 millim. long. Central posterior eyes half a diameter apart . . . . . *extensa,* O. P.-Cambr.

*b*. Tibial spur, viewed from the outer side, straight, rounded-claviform, not compressed, without a cusp at the apex. Size smaller: carapace 7 millim. long. Central posterior eyes one diameter apart . . *connexa,* O. P.-Cambr.

### 1. **Trechalea habilis.** (Tab. XXX. fig. 15, ♂.)

*Triclaria habilis*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. pp. 133, 233, t. 22. figg. 9, 9 *a–f* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 10 millim.

*Hab.* GUATEMALA (*Sarg*[1]).

### 2. **Trechalea extensa.** (Tab. XXX. figg. 16, 16 *a*, *b*, ♂.)

*Triclaria extensa*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. pp. 174, 233, t. 22. figg. 10, 10 *a–f* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 20 millim.

*Hab.* GUATEMALA (*Sarg*[1]).

### 3. **Trechalea connexa.** (Tab. XXX. fig. 17, ♂.)

*Triclaria connexa*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 233, t. 30. figg. 1, 1 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 14 millim.

*Hab.* MEXICO, Atoyac (*H. H. Smith*[1]).

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NOTE.—*Perissoblemma approximatum*, O. P.-Cambridge, Biol. Centr-Amer., Arachn. Aran. i. p. 105, t. 14. figg. 4, 4 *a*, *b* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 2·5 millim.

*Hab.* PANAMA, Bugaba (*Champion*[1]).

This spider, described from two immature females, is probably the young of a species of *Enna* or *Tinus*.

## [HESYDRUS.

*Hesydrus*, E. Simon, Hist. Nat. Araign. (2) ii. p. 315 (1898).

Type *H. palustris*, E. Simon. Ecuador.

This Tropical-American genus differs from *Trechalea* in having the posterior central eyes more widely separated, all four posterior eyes being also equidistant. The clypeus, too, is subvertical, not porrect (sec. Simon).

It is inserted here for comparison, because I have identified *Hesydrus* (Sect. 2), type *H. jullieni*, E. Simon, from Panama, as congeneric with *Enna*, O. P.-Cambridge.]

## SYNTRECHALEA, gen. nov.

Type *S. tenuis*, sp. n. (♀). Central America.

This genus is closely allied to *Trechalea*; but differs from it in having the tibiæ and protarsi of the first pairs of legs much more numerously spinose beneath; leg iii. is

longer than i., and the tibiæ i. and ii. have no small apical pair of spines beneath. The anterior row of eyes is straight or slightly procurved; the centrals are less than one diameter apart, larger than the laterals; the posterior centrals are scarcely one diameter apart, slightly further from the laterals. Clypeus twice as high as the diameter of an anterior central eye. Lower margin of the fang-groove with three equal equidistant teeth.

1. **Syntrechalea tenuis,** sp. n. (Tab. XXX. fig. 18, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

The entire spider yellow, clothed with white hairs; the legs also with indistinct dusky annulations. Abdomen suffused with olive-brown, with darker speckles (either the markings have been obliterated or else there is no decided pattern).

The vulva consists of a circular-oval area, with a central, convex, somewhat wedge-shaped-oval tongue, not quite reaching the posterior margin.

*Hab.* Panama, Bugaba (*Champion*).

## Fam. LYCOSIDÆ.

As I have remarked elsewhere, it is very difficult to give any constant characters by which this family can be distinguished from either the Agelenidæ or Pisauridæ. From the former, however, the species here referred to it can be separated by the eyes being in three rows, instead of two, and from both by the fact that the tibia of the male palpus is *never* armed with a spur.

The genera referred to below may be recognized as follows:—

### Genera.

A. Tibiæ iii. and iv. with a distinct stout spine at the base above, situated slightly towards the inner margin.

i. Tibia i. with 2—2—2 short (in length equal to the diameter of the segment, or not greater) spines beneath, the last pair apical. Cephalic region without any distinct dark wedge-shaped mark within a pale central band.

*a*. Carapace, seen from in front, precipitous at the sides. Labium not longer than broad. Bulb of the male palpus with a variously formed central process and no barb-like spur . . . . . Pardosa, Simon.

*b*. Carapace, seen from in front, oblique or rounded at the sides. Labium longer than broad. Bulb of the male palpus without any central process, but with a barb-like spur on the outer margin . . . . . Lycosa, Latr.

ii. Tibia i. with very long spines (longer than the diameter of the segment) beneath, 2—2 in the female, the last pair median; 2—2—2 in the

male, the last pair apical. Cephalic region with a distinct, dark, elongate, wedge-shaped mark within a central pale band . . . . PIRATA, Sundev.

B. Tibiæ iii. and iv. without any spine at the base above (represented sometimes by a long stiff hair).

*a'*. Posterior spinners shorter than the anterior, the terminal segment very short; anterior row of eyes not wider than the posterior centrals . . . . . ARCTOSA, C. L. Koch.

*b'*. Posterior spinners longer than the anterior, the terminal segment longer; anterior row of eyes distinctly wider than the posterior centrals . . . . . SOSIPPUS, Simon.

## PARDOSA.

*Pardosa*, C. L. Koch, Die Arachn. xiv. p. 100 (1848).

Type *P. striatipes*, C. L. Koch (selected by Simon). Europe.

The spiders included in this genus are those referred by Simon ('Les Arachnides de France,' and 'Histoire Naturelle des Araignées,' ed. 2) to *Pardosa*. They differ from those included under *Tarentula* in the precipitous sides of the anterior portion of the carapace, and in having a variously formed process in the centre of the bulb of the male palpus.

The species known to me may be distinguished as follows:—

### *Males.*

A. Central process of palpal bulb very long and comparatively narrow, extending from the centre to the external margin of the tarsus.

i. Central process narrower at the base and with either an obliquely directed or a circularly curved spine lying across and beneath it.

*a*. Central process directed obliquely forward, its apex bent inward towards the bulb, but not backward, squarely or obliquely truncate; the spine lying beneath the process circularly curved and very distinct . . . *prolifica*, sp. n.

*b*. Central process strongly curved across the bulb, its apex bluntly pointed and directed backward; the spine lying beneath it being indistinct and obliquely directed . . . . . *longivulva*, sp. n.

ii. Central process much broader at the base (though variable), narrowing to the apex, directed straight across the bulb, its point directed downward and slightly backward . . . . . *falcifera*, sp. n.

B. Central process of the bulb much shorter and broader.

1*. Central process of bulb with a long, stout, curved spur directed upward from about the middle of its lower margin.

*a'*. Central process very much broader and more concave basally, its apex forming a broad striate hook. Tibia and tarsus of palpi yellow, the rest black . . . . . *flavipalpis*, sp. n.

$b^1$. Central process narrower, less concave basally, its apex forming a more slender smooth hook. Palpi entirely brown or black . . . . . *uncatula*, sp. n.

2*. Central process of bulb without any spur on the lower margin towards the base.

$a^2$. Central process much smaller and less conspicuous, its apex hooked but not directed upward and backward . . . . . *unguifera*, sp. n.

$b^2$. Central process larger and more conspicuous, its apex strongly hooked, basally concave, directed upward and backward.

$a^3$. Anterior process of bulb very large, transverse-elongate, punctate, without any stout black spur (see figure on Plate) . . . . . *falcula*, sp. n.

$b^3$. Anterior process of bulb less conspicuous, but with a stout, black, shining spur directed backward towards the central process . . . *hamifera*, sp. n.

## *Females.*

A. Vulval area exhibiting a more or less distinct small cap-like plate, concave beneath.

I. Vulval area exhibiting a small cap-like plate, concave beneath.

i*. Cap-like plate situated on the anterior margin of the vulval area.

* Posterior margin of the cap-like plate simple, curved.

*a*. Vulval area not divided into three elongate lobes by a central tongue-like piece.

$a^1$. Posterior margin of vulva exhibiting, on the genital rima, a pair of conspicuous oval or oval-quadrate orifices, divided by a broader or narrower, chitinous, bridge-like septum.

1. Posterior orifices smaller in proportion to the length of the vulval area, divided by a narrow septum, but without any black bean-like pieces within . . . . . *prolifica*.

2. Posterior orifices larger in proportion to the length of the vulval area, divided by a broad septum, exhibiting within, lying on the floor at the inner side of each, a black punctate bean-like piece . . . . . *falcifera*.

$b^1$. Posterior margin of vulva, on the genital rima, without any pair of orifices.

$a^2$. Vulval area (from the cap to the genital rima) shorter in proportion. Central channel with a pair of dark, elongate, parallel, bean-like pieces, one on each side in the posterior half . . . . . *uncatula*.

$b^2$. Vulval area much longer in proportion. Central channel without bean-like pieces, but with a small brown-red spheroid on each side near the genital rima and another smaller one anteriorly situate on each side . . . . . *longivulva*.

*b*. Vulval area divided into three elongate lobes by a central tongue-like piece . . . . . *linguata*, sp. n.

** Posterior margin of the cap-like plate sinuous, more prominent in the centre . . . . . *plagula*, sp. n.

ii*. Cap-like plate situated about the centre of the vulval area . . . . *flavipalpis*.

II. Vulval area exhibiting a modification of the cap-like plate to form a deep central concave groove.

$a^3$. Central groove longer. Posterior margin of the vulva with a distinct ⊥-shaped process, its narrow stem running forward along the floor of the channel . . . . . *unguifera*.

$b^3$. Central groove shorter. Posterior margin of the vulva with a broad, convex, oval-transverse piece . . . . . *lineata*, sp. n.

B. Vulval area without any distinct, small, cap-like plate anteriorly, nor modification of one. Vulva with a long, central, shallow channel . . . . . *canalis*, sp. n.

Note.—The coloration of these spiders is so much alike in the various species and so variable amongst individuals that reliable characters cannot be drawn from this source. It is possible also that some of the males and females here described under different names may eventually be found to be of the same species, but there is at present no sufficient evidence to justify this conclusion.

The characters of *P. milvina*, *P. accurata*, *P. medialis*, *P. sabulosa*, and *P. bellona* are unknown to me, and cannot, therefore, be included in the table; unfortunately, the figures given by Banks render identification of his three species mere guesswork, being insufficiently detailed.

### 1. **Pardosa prolifica**, sp. n. (Tab. XXX. figg. 19, 19 *a*, ♂; 20, 20 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 6, ♀ 7 millim.

Colour very variable in both sexes, becoming darker as the spiders advance towards maturity. In the light-coloured varieties the carapace is brown, with a central pale band, dilated behind the posterior eyes, but not extending into the ocular area. Abdomen brown, with pale speckles and a central, anterior, pale, lanceolate bar, which is followed by a pair of pale spots on each side at its apex, and by a central series of four pale spots, each with a pair of black setigerous spots. Ventral area entirely clothed with white hairs. Sternum yellow. Legs yellow, annulated with black. Mandibles yellow.

In darker varieties of the female and in the male sex the yellow colour is much obscured and the pale spots on the abdomen become obsolete, while the legs are almost unicolorous brown, with only very faint indications of annuli. In the vast majority of examples the sternum is black, with a narrow, pale yellow, central line.

Palpus of the male deep black, especially the tibia and tarsus, which are clothed with a very dense covering of short black hairs.

Palpal organs quite characteristic: the central process is very long, comparatively narrow, with a short black spur at its base, strongly geniculate in its basal half, curving obliquely forward across to the outer margin, where it is deflected and truncate; across and beneath it, about the middle, runs a conspicuous black spine, its point directed backward and towards the outer side.

Vulva of the female usually longer than broad, but variable in form, consisting of a short, transverse, anterior, convex cap, concave beneath, and posteriorly a pair of cavities, whose chitinous margins are variously conformed, usually rounded rectangular, the inner margins coalescent in the middle line, forming a central bridge. A narrow longitudinal groove runs along the centre of the area, disappearing under the anterior cap, and is formed by two broad chitinous pieces, whose posterior margins are sinuous and overlap the anterior part of the two cavities. Sometimes the central groove vanishes, leaving a broad, pale, central area.

*Hab.* Mexico, Amula, Omilteme, Mexico city (*H. H. Smith*); Costa Rica, San José (*Tristan*).

A very abundant species.

### 2. **Pardosa longivulva,** sp. n. (Tab. XXX. figg. 21, 21 *a*, ♂; 22, ♀.)

Type ♀, androtype ♂, in coll. Godman & Salvin. Total length, ♀ ♂, 4·5 millim.

Colour similar in both sexes. Carapace brown, usually with a central orange band, slightly dilate behind the posterior eyes, and an indistinct, broken, submarginal band. Abdomen with a pale band down the middle, very similar to that of others of the genus, formed of the lanceolate band and paired pale spots. Legs yellow, faintly annulated with dusky brown. Sternum and ventral area of abdomen clothed with white hairs. The colours in the male sex are similar, but there is much less of the pale tint.

Vulva of the female very elongate, with the usual small concave cap anteriorly, whence a shallow pale groove runs down the centre. From the posterior margin an elongate wedge-shaped tongue runs forward up this groove, being often slightly sinuous, much attenuated, and finally vanishing into the floor of the groove. On each side of the posterior dilate portion of the tongue lies a larger spheroidal boss, and a little further forward another smaller and less distinct one.

The vulva, at first sight, is very similar to that of *P. uncatula*; but there are in the present species no bean-shaped lateral pieces, these being represented by the spheroids; and the distance from the cap to the rima is very much greater.

Palpus of the male very similar in general character to that of *P. prolifica*; the central process, however, is much more recurved and does not extend forward, but straight across to the outer margin of the tarsus; it is also slightly concave beneath, and presents a similar conical cusp at its base; moreover, there is no curved spine crossing beneath it (as in *P. prolifica*), merely an indistinct straight one. Otherwise the palpi of *P. prolifica*, *P. uncatula*, *P. longivulva*, and *P. falcifera* appear at first sight very much the same, especially when viewed laterally from the *inner side*.

*Hab.* Mexico, Amula, Teapa (*H. H Smith*).

### 3. **Pardosa falcifera,** sp. n. (Tab. XXX. figg. 23, ♂; 24, 24 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 6·5, ♀ 8 millim.

Colour in both sexes much the same, but that of the female is more distinct. Carapace deep black-brown, with a dull orange central band, dilate behind the posterior eyes, the dilated portion having two small brown blotches, sometimes coalescent, in the centre; and a narrow orange submarginal band, including also the clypeus. Abdomen deep brown-black, with the usual pale lanceolate band, which is sometimes followed by the usual pale spots, with the dark punctiform marks. Ventral area clothed with white hairs. Legs deep orange-brown, the femora of all four pairs and the tibiæ of iii. and iv. spotted and blotched with deep black. Sternum orange, with the margins and a broad, central, oval spot black, the latter coalescing with the marginal line posteriorly, having anteriorly a narrow, central, pale line not reaching beyond the middle.

The colours in the male are much more obscure: the basal half of femora i. and ii. is entirely jet-black; femora iii. and iv. annulate; the rest of the legs bright orange. Palpi jet-black, densely clothed with short black hairs.

Palpus of the male similar in general appearance to that of *P. prolifica*, but the form of the organs is very distinct. The central process is directed obliquely, but slightly, forward, its apex deflected and reaching the outer margin of the tarsus, being very broad at the base, with a small black cusp set in a deep cavity posteriorly, gradually tapering and terminating at the apex in a blunt point.

The vulva of the female is also similar to that of *P. prolifica* in general shape, and is very variable in different individuals. It consists of the usual concave cap anteriorly, with, in the posterior half, two oval cavities divided by a broad (variable), central, chitinous bridge, which has on its posterior margin a more conspicuous pale triangular area, very small in var. 1 (fig. 24), very much larger in var. 2 (fig. 24 *a*); within each

cavity, lying close under the margins of the bridge, is a dark, punctate, bean-like piece, of very variable form. Figures of the two extreme forms are given on the Plate, but many intermediate varieties occur. The two cavities in this species are much larger in proportion to the whole vulval area than in *P. prolifica*, and in this latter species no black bean-like pieces are evident.

*Hab.* Mexico, Omilteme, Orizaba, Cuernavaca, Mexico city (*H. H. Smith*).

4. **Pardosa flavipalpis,** sp. n. (Tab. XXX. figg. 25, 25 *a*, *b*, ♂; 26, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 6, ♀ 7 millim.

Colour similar in both sexes. Carapace rich chocolate-brown, with a central orange band, narrowed behind, gradually dilate, terminating before the posterior eyes, where there are two small brown blotches, sometimes coalescent within the pale band; a bright orange submarginal band, including the external angles of the clypeus, the rest of the clypeus being brown, with a central yellow spot. Abdomen brown, speckled with yellow, and with the usual lanceolate pale band, margined with black, and the dorsal series of paired spots. Ventral area pale yellow, clothed with white hairs.

Legs bright orange, annulated with deep black.

Palpus of the male:—Femur orange, the whole middle portion black, patella and tibia orange, tarsus deep black. The central process of the palpal bulb is very broad, transverse, and strongly uncate, or reflected downward, concave at the base beneath, bearing a long (not easily seen) sharp spur, curving upward.

Vulva of the female very broad, having a little behind the middle of the area a central convex cap, from beneath whose margin issues the narrow stem of a somewhat ⊥-shaped process, its arms curving forward, forming a small cavity on each side of the stem, where it joins the cross-piece. The position of the cap at once distinguishes it from that of *P. prolifica*, to which at first sight it bears a general resemblance.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

5. **Pardosa uncatula,** sp. n. (Tab. XXX. figg. 27, 27 *a*, ♂; 28, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4, ♀ 6 millim.

Coloration in both sexes much the same as in *P. prolifica*, but in the majority of the males much lighter, the abdomen having a broad, pale, central, foliated band, and the sternum usually pale yellow. The central band on the carapace in both sexes extends up into the ocular area. The colour of the palpi of the male varies from brown to deep black, the tibia and tarsus being usually deep black and clothed with moderately dense hairs, but these segments are not so large in proportion as in *P. prolifica*. The legs are pale yellow and more or less distinctly annulate, sometimes in the male sex, however, they lose the annulations almost entirely.

Palpal organs:—The central process, seen from beneath the segment, is short, broad, with a stout, black, blunt spur about the middle of the posterior margin, and a stout hook at the apex. The process lies flat, slightly obliquely, but its apex does not nearly reach the outer margin, nor does the black spine, which is, however, visible, stretch across beneath it. Seen from the inner side, the hook of the process is obviously a thin lamina and the apex looks quite sharp; the basal median spur is very conspicuous, as is also another stout black spur on the anterior portion of the bulb. The tarsus is shorter in proportion than in *P. prolifica*, broader and more globular.

The vulva of the female is characteristic, having the usual small concave cap anteriorly, with a broad, longitudinal, central groove, which is somewhat dilate where it touches the posterior margin. In its posterior half the groove passes between a pair of elongate, more or less regular, convex, parallel, bean-like bosses; but the variation in actual shape is so great that it is impossible to give any single description or figure which would hold good for all the forms. The elongate bean-like bosses are, however, constant.

*Hab.* Mexico, Amula, Frontera (*H. H. Smith*); Guatemala, Cubilguitz, Choctum (*Sarg*); Costa Rica, La Palma (*Tristan*).

### 6. **Pardosa unguifera,** sp. n. (Tab. XXXI. figg. 1, ♂; 2, 2 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5·5, ♀ 9 millim.

Colour variable, but similar in both sexes. Carapace brown, with a broad, central, orange band, scalloped on each side, dilate laterally behind the posterior eyes, and constricted again behind the central stria, with an orange marginal band, broken up into four quadrate spots. Abdomen brown, with a darker lanceolate bar, flanked with pale spots on each side, followed by the usual central spots and a series of lateral spots as well. Sometimes the marginal band on the carapace is obsolete and the central band very obscure, and in some cases the dorsal area of the abdomen is entirely yellow, in others scarcely any spots are visible.

Legs yellow-brown, indistinctly annulated with black. Sternum black. Ventral area of abdomen clothed with white hairs.

Palpus of male dull yellow-brown. The central process of the bulb is very short, black, and hooked downward at the tip, its apex falling a long way short of the exterior margin of the tarsus.

Vulva of female very characteristic, variable in form, being sometimes longer, sometimes shorter, consisting of a deep central cavity (a modification of the usual small concave cap), anteriorly with a ⊥-shaped process on the posterior margin, whose cross-piece is sinuous on the inner margins, dilate at the extremities, while the stem is very slender and extends more or less up along the floor of the central cavity, but the exact shape of this is very variable.

*Hab.* MEXICO, Amula, Teapa (*H. H. Smith*); GUATEMALA (*Sarg*).

### 7. **Pardosa falcula,** sp. n. (Tab. XXXI. fig. 3, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

Carapace and abdomen entirely brown, in one example the former has a slight pale central line and an indistinct marginal band; ventral area and sternum clothed with white hairs. Legs bright yellow; femur i. with a basal blotch of black on the inner side.

Palpus of male black. Tarsus short, globular; central process short, broad, concave at its base, strongly recurved and hooked at the apex, being directed also obliquely backward. The anterior portion of the bulb bears a transverse, elongate, punctate process, much larger than in any other of the species described here.

*Hab.* GUATEMALA (*Sarg*).

### 8. **Pardosa hamifera,** sp. n. (Tab. XXXI. figg. 4, 4 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

Carapace brown, with the usual central and submarginal orange bands. Abdomen brown, with the usual central pale band. Legs yellow, faintly annulated with dusky. Palpus black, femur and patella with paler hairs, tibia and tarsus densely clothed with short black hairs.

Palpal bulb and processes very similar in general appearance to those of *P. falcula*, but instead of the large, elongate, yellow, punctate lobe (at *b* on the Plate) there is a conspicuous black spur; nor is the bulb nearly so broad and globular at the base.

*Hab.* GUATEMALA (*Sarg*).

### 9. **Pardosa linguata,** sp. n. (Tab. XXXI. figg. 5, 5 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7·5 millim.

Colour very dark. Carapace deep brown, with scarcely any trace of a marginal band, but with a central yellow band, dilate behind the posterior eyes, and, usually, a pair of short, very narrow, adjacent, parallel, pale lines in the ocular area. Abdomen very dark brown dorsally, with scarcely a trace of the lanceolate band, but with a pair of, usually conspicuous, oblique pale bands on each side of it; the rest

of the dorsal area is either entirely dark or more or less mottled with yellow; ventral area clothed with white hairs. Sternum black, with a very narrow, central, pale line. Legs orange, very broadly annulated with deep black.

Vulva characteristic, exhibiting the usual small, anterior, concave cap; posteriorly divided into three longitudinal lobes by two shallow sinuous grooves, the central lobe being broad and tongue-shaped, narrowing and bluntly rounded at the posterior margin, its apex not passing beyond those of the lateral lobes, which are rounded on the external margin and gradually narrowed towards the genital rima; the three lobes more or less rugulose, and somewhat variable in shape, but preserving their distinctive character.

*Hab.* MEXICO, Amula (*H. H. Smith*).

### 10. **Pardosa plagula,** sp. n. (Tab. XXXI. fig. 6, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

Carapace black, with a pale yellow central band, not dilate nor extending forward beyond the posterior eyes, with a submarginal yellow band, including also the clypeus. Sternum yellow, with a broad V-shaped central black spot, itself bearing a central yellow line in the anterior half. Legs orange, annulated with deep black.

Vulva very simple, consisting of an anterior concave cap, whose posterior margin is very prominent in the middle, concavo-emarginate on each side; from beneath the cap issues a broad tongue becoming wider and more convex as it approaches the genital rima, where it is squarely truncate, and slightly depressed in the middle.

*Hab.* GUATEMALA (*Sarg*).

### 11. **Pardosa lineata,** sp. n. (Tab. XXXI. figg. 7, 7 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

Colour dark brown, with broad bright yellow marginal band, extending to and including the clypeus, and an indistinct central band, not extending further than the posterior eyes, where it is abruptly narrowed. Legs bright yellow, at most very indistinctly annulated or spotted. Abdomen brown, with a (always noticeable) narrow, pale yellow, anterior line, which takes the place of the usual lanceolate mark; this is followed by the usual spots, which are, however, sometimes entirely obsolete.

Vulval area broad-oval, with a deep, broad, central cavity (variable in shape) and a conspicuous, transverse-oval, convex piece in the centre on the posterior margin.

*Hab.* MEXICO, Amula (*H. H. Smith*).

### 12. **Pardosa canalis,** sp. n. (Tab. XXXI. fig. 8, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

Colour bright yellow; the central yellow bar on the carapace dilate behind the posterior eyes, with two small branches extending forward between them, and the pale marginal bands are spotted and suffused with brown on the outer border. Ventral area of the abdomen clothed with white hairs. Legs bright yellow, more or less distinctly spotted and annulated with black.

Vulva characteristic, without any small concave cap anteriorly, but with a long, shallow, central channel extending throughout the length of the area; posterior margin distinctly notched in the middle, with a smaller less evident notch on each side; having also on each side of the posterior portion of the area a narrow elongated duct, slightly dilate anteriorly, uniting posteriorly on the middle line in front of the central notch.

*Hab.* MEXICO, Omilteme in Guerrero (*H. H. Smith*).

### 13. **Pardosa milvina.**

*Lycosa milvina,* Hentz, Journ. Bost. Soc. Nat. Hist. iv. p. 392, t. 18. fig. 8 (1844)[1]; Spid. U. S., ed. Burgess, p. 33, t. 4. fig. 5[2].

*Pardosa milvina,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 273[3].

*Hab.* North America, Alabama[1 2].—Mexico, Tepic, Orizaba[3].

### 14. **Pardosa accurata.**

*Pardosa accurata,* Becker, Compt. Rend. Soc. Ent. Belg. xxx. p. xxiv (♀) (1886)[1].

*Hab.* Mexico[1].

### 15. **Pardosa sabulosa.**

*Pardosa sabulosa,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 273, t. 16. fig. 28 (♀)[1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 5·5 millim.

*Hab.* Mexico, Tepic[1].

### 16. **Pardosa medialis.**

*Pardosa medialis,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 273, t. 16. fig. 29 (♀)[1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 4·5 millim.

*Hab.* Mexico, Tepic[1].

### 17. **Pardosa bellona.**

*Pardosa bellona,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 275, t. 16. fig. 21 (♂ ♀)[1].

Type ♂, gynetype ♀, in coll. Calif. Acad. Sci. Total length, ♂ ♀, 5·1 millim.

*Hab.* Mexico, San Miguel de Horcasitas[1].

## LYCOSA.

*Lycosa,* Latreille, Nouv. Dict. xxiv. p. 135, column 2, line 38 (1804).

Type *L. tarentula* (Fabr.). Europe.

Under this generic name have been included the spiders usually recognized under the genera *Tarentula*, *Trochosa*, and *Lycosa*, since it is almost impossible to separate them into satisfactory groups.

The species known to me may be recognized as follows:—

*Males.*

I. Protarsus iv. scopulate at the apex beneath. Abdomen with a continuous, dentated, dark band reaching from the base to the spinners . . . . *insignis*, O. P.-Cambr.

II. Protarsus iv. not scopulate beneath. Abdominal dorsal band not continuous to the spinners.

A. Ventral area of abdomen more or less banded with black.

*a*. Ventral area with broad, black, central band, sometimes divided in the middle.

1. Ventral broad black band not divided in the middle line. Lamina of palpal bulb with a sharp obliquely directed barb . . . . *ventralis*, sp. n.

2. Ventral broad black band divided in the middle line for two-thirds of its length by a narrow white bar. Lamina of palpal bulb with a blunt hook-like barb directed at right angles from the basal portion . . . . . *uncata*, sp. n.

*b*. Ventral area without a broad black band, but with a narrow dusky central bar reaching two-thirds to the spinners . . . . . *dilatata*, sp. n.

B. Ventral area of abdomen unicolorous yellow or yellow-brown.

*a*[1]. Tarsi i. and ii. shorter in proportion, distinctly curved, and with the protarsi more densely scopulate beneath. Carapace longer than protarsus iv., as long as tibia + patella iv.

1*. Central pale band on carapace narrowed towards the ocular area, through which it runs as a fine point . . . . . *brevitarsis*, sp. n.

2*. Central pale band on carapace not narrowed towards the ocular area, but dilate behind the eyes and occupying the whole ocular area . . . . . *constricta*, sp. n.

*b*[1]. Tarsi i. and ii. longer in proportion, straight, slender, and with the protarsi only slightly scopulate beneath. Carapace shorter than protarsus iv., and shorter than tibia + patella iv. . . . . *longitarsis*, sp. n.

*Females.*

A. The whole spider, except the carapace posteriorly, clothed with short semierect scattered silky hairs. Abdomen with a uniform dull dentated band running down the whole length of the dorsal line. Protarsus iv. scopulate throughout . . . . . *hirsuta*, sp. n.

B. The spider not clothed with short silky hairs. Abdomen with a dark lanceolate basal longitudinal central bar, followed by spots or Λ-shaped marks. Protarsus iv., at most, slightly scopulate at the apex beneath.

I. Ventral area of abdomen either entirely black or with one or more longitudinal black or dusky bands.

*a*. Ventral area entirely black.

*a**. Sternum and coxæ of legs suffused with black.

1. Mandibles black, with some ferruginous-grey hairs in front, and a conspicuous narrow marginal band of the same. Stem of central ⊥-shaped process of vulva very broad at the junction, broadly dilate to the base . . . . . *brunnea*, sp. n.

2. Mandibles brown, with some ochreous hairs in front, but no marginal band. Stem of central ⊥-shaped process of vulva narrow at the junction, not dilate, but parallel-sided . . . *subfusca*, sp. n.

*b**. Sternum and coxæ of legs suffused with dull yellow-brown.

*a*[1]. Vulval area as long as, or a little longer than, broad.

$a^2$. Vulval area as long as broad. Cross-piece of central ⊥-shaped process distinctly longer than the stem . . . *transversa,* sp. n.

$b^2$. Vulval area a little longer than broad. Cross-piece of central ⊥-shaped process not longer than the stem . . *ventralis.*

$b^1$. Vulval area much longer than broad. Stem of central ⊥-shaped process considerably longer than the cross-piece . *longivulva,* sp. n.

*b.* Ventral area black, but divided longitudinally by one or more pale lines.

$a^3$. Ventral area with a pale, wedge-shaped, central band, having a dark narrow band on each side. Vulval cavity much broader, as broad on each side as the stem of the central ⊥-shaped process; the latter dilate, but angular just before the middle . . . . . *lativulva,* sp. n.

$b^3$. Ventral area with a narrow, dusky, central band, reaching two-thirds to the spinners, surrounded by a pale area. Vulval cavity not so wide, much narrower on each side than the stem of the central ⊥-shaped process; the latter broadly and circularly dilate in the middle . . . . . *dilatata.*

II. Ventral area of abdomen unicolorous yellow or yellow-brown, or simply spotted with brown.

i. Ventral area unicolorous yellow or yellow-brown.

$a^1$. Leg iv. shorter in proportion; protarsus iv. shorter than the carapace. Vulval area as broad as, or broader than, long.

1*. Vulval area as broad as long. Central ⊥-shaped process much broader at the junction of the stem and cross-piece, gradually but broadly dilate to the base. Central pale band on carapace narrowed to the ocular area, terminating in a point . . . . *brevitarsis.*

2*. Vulval area broader than long. Central ⊥-shaped process much narrower, or constricted, at the junction of the stem and cross-piece, abruptly and broadly dilate to the base. Central pale band on carapace not narrowed but dilate behind the posterior eyes and occupying the whole ocular area . . . . . *constricta.*

$b^1$. Leg iv. longer in proportion; protarsus iv. longer than the carapace. Vulval area longer than broad. Central ⊥-shaped process much longer and narrower in the stem, almost parallel-sided . . *longitarsis.*

ii. Ventral area ferruginous, but speckled with brown . . . . . *guttatula,* sp. n.

### 1. **Lycosa insignis.** (Tab. XXXI. figg. 9, 9 *a*, ♂.)

*Trochosa insignis,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 272, t. 38. figg. 7, 7 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 16 millim.

*Hab.* Costa Rica, San José (*Tristan & Biolley*[1]).

This spider is in all probability the male of *L. scutulata*, Hentz, if one may judge from a female thus labelled by Emerton in the British Museum.

### 2. **Lycosa hirsuta,** sp. n. (Tab. XXXI. fig. 10, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 25 millim.

Colour entirely dusky brown; the whole spider, except the posterior portion of the carapace, clothed with short, pale, scattered, semierect, silky hairs. Carapace without distinct pale bands. Sternum, coxæ, and femora of legs black; tibia iv. with an apical dark annulus. Abdomen with an indistinct, dorsal, central, more or less dentated, black band, extending from the base to the spinners, with a dull pale band on each side; ventral area speckled with brown and with a more or less distinct, broad, wedge-shaped, central, dusky band. Ocular area clothed in front with fulvous hairs; mandibles black, with yellowish hairs on the sides and in front. Protarsus iii. scopulate beneath throughout. Anterior row of eyes procurved, slightly narrower than the second row, the eyes of the latter less than one diameter apart. Tibia and patella i. as long as tibia and patella iv. taken together, and as long as the carapace.

Vulval area longer than broad; vulval cavity only slightly wider on each side than the central ⊥-shaped process, whose stem is slightly longer than the cross-piece, narrow and parallel-sided.

*Hab.* MEXICO, Atoyac in Vera Cruz (*H. H. Smith*).

### 3. **Lycosa subfusca,** sp. n. (Tab. XXXI. fig. 11, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length (large ♀) 16 millim.

Carapace brown, clothed with grey hairs, with an ill-defined, pale, submarginal band and a central pale band dilate towards and between the posterior eyes; having a pair of narrow, longitudinal, dark lines in the dilated portion. Abdomen mouse-grey, with a tinge of ochreous above and on the sides; with an indistinct, basal, central, lanceolate, dark band, bordered with pale ochreous, followed by a series of very slender, transverse, ⌒-shaped, pale lines, their extremities dilate; ventral area entirely black. Legs ochreous, with very faint traces of dusky annulations, a single spot near the apex of tibia iv. above being more conspicuous. Sternum and coxæ black. Mandibles brown, with some ochreous hairs in front and on the sides. Patella and tibia i. shorter than patella and tibia iv. and than the carapace.

Vulval area a little longer than broad; cross-piece of the central ⊥-shaped process broad, with a depression on each branch, as long as the stem, which is narrow and parallel-sided.

*Hab.* MEXICO, Chilpancingo, Amula, and Omilteme in Guerrero (*H. H. Smith*).

### 4. **Lycosa brunnea,** sp. n. (Tab. XXXI. figg. 12, 12 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 27 millim.

Carapace dark brown, with indistinct marginal pale bands and a more distinct, central, pale band, narrow at the base, gradually dilate towards the ocular area. Legs brown, somewhat ferruginous above. Mandibles black, with a narrow marginal band of ferruginous hairs and some anterior basal hairs of the same colour. Abdomen with the typical Tarentuloid markings: dark shoulder-spots, a central lanceolate black bar with short lateral branches, followed by some central spots, the shoulder-spots being continued laterally, broken behind the middle, followed by a black spot on each side, set posteriorly with some white hairs; lateral area fulvous, especially anteriorly; ventral area deep velvety black. Sternum and coxæ black.

Anterior row of eyes slightly procurved, almost straight, scarcely narrower than the second row, whose eyes are rather over half a diameter apart. Tibia and patella i. as long as tibia and patella iv., slightly longer than the carapace.

Vulval area as broad as long; stem of the central ⊥-shaped process not longer than the cross-piece, very broad, dilate to base.

*Hab.* MEXICO, Teapa (*H. H. Smith*); GUATEMALA, Tikal, Menché, Cahabon (*Sarg*).

### 5. **Lycosa transversa,** sp. n. (Tab. XXXI. fig. 13, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 18 millim.

Coloration similar to that of *L. brunnea*, but in the single specimen received (an adult female with an egg-cocoon) the markings are very much obscured, as is often the case with examples which have deposited their eggs. Sternum and legs not suffused with black. Eyes and other characters as in *L. brunnea*.

Vulval area slightly broader than long, cross-piece of the central ⊥-shaped process distinctly longer than the stem, which is moderately narrow at the junction, but broadly dilate to the base.

*Hab.* GUATEMALA (*Sarg*).

### 6. **Lycosa ventralis,** sp. n. (Tab. XXXI. figg. 14, 14 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 13, ♀ 16 millim.

Colour of the male practically the same as in *L. uncata*, but the sternum and coxæ of the legs are yellow-brown and the entire ventral area is black; the mandibles light red-brown, clothed with grey hairs. Structurally, the two spiders are also very similar, except that the barbiform process of the palpal bulb is more slender, the barb very sharp, longer when viewed from the outer side, when viewed from above and in front presenting itself as a narrow sharp lamina, obliquely situated with respect to its basal portion. Tibiæ i. and ii. with a dorsal apical spine.

The coloration of the female is very similar to that of the male. The stem of the central ⊥-shaped process of the vulva is much broader where it joins the cross-piece than is the case in *L. dilatata*.

*Hab.* MEXICO, Amula (*H. H. Smith*).

### 7. **Lycosa longivulva,** sp. n. (Tab. XXXI. fig. 15, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 20 millim.

Coloration and general structure as in *L. brunnea*, except that the sternum and legs are not suffused with black. Vulval area much longer than broad, the stem of the central ⊥-shaped process distinctly longer (it looks much longer than really so by measurement) than the cross-piece, narrow at the junction, slightly dilate beyond the middle, again narrowing to the base.

*Hab.* GUATEMALA, Jalapa (*Sarg*).

### 8. **Lycosa lativulva,** sp. n. (Tab. XXXI. fig 16, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 20 millim.

Colour almost as in *L. guttatula*, but the central band on the carapace is narrow towards the base and strongly dilate in front behind the eyes, occupying also the whole ocular area; there is also a very narrow, but distinct, pale marginal line. The ventral area of the abdomen has a pale, wedge-shaped, central bar, with a dark bar on each side of it. Vulval area broader than long, almost circular, the stem of the ⊥-shaped process longer than the cross-piece, which is narrow, strongly dilate towards the base, and again narrowed. Eyes and other characters as in *L. guttatula*.

*Hab.* GUATEMALA (*Sarg*).

### 9. **Lycosa dilatata,** sp. n. (Tab. XXXI. figg. 17, 17 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 14, ♀ 17 millim.

Colour in the male like that of *L. ventralis*, except that the ventral area is pale, with a paler broad median band, having a narrower central dusky band running from the genital rima to the spinners. Structurally, too, the spiders are similar, except that in the present species the barbiform process of the palpal bulb is much longer when viewed from the outer side, otherwise almost identical in form Tibiæ i. and ii. without dorsal apical spine.

The female is similar to the male in colour and general structure. The stem of the central ⊥-shaped process of the vulva is, however, much constricted at its junction with the cross-piece, abruptly broadening, forming a circular dilatation.

*Hab.* MEXICO, Amula (*H. H. Smith*).

### 10. **Lycosa brevitarsis,** sp. n. (Tab. XXXI. fig. 18, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 12, ♀ 15 millim.

Carapace brown, with an indistinct, broken, submarginal, yellow band and a distinct, similarly coloured, central band, slightly constricted at the base of the cephalic region and again at the posterior eyes, narrowed from the central stria to a point terminating behind the anterior central eyes, with a short pale line on each side in the cephalic area.

Abdomen variable in colour: usually olive-brown, with a darker shoulder-spot and a dark, anterior, central, lanceolate, dorsal bar, followed by a series of indistinct yellow chevrons, the anterior ones disconnected in the middle. Sternum and legs yellow-brown, the latter sometimes indistinctly annulate and brighter on the upperside. The palpal bulb presents a barb-like spur similar to that present in other allied species.

Anterior row of eyes very slightly procurved, almost straight, slightly narrower than the second row. Tarsi i. and ii. short, as long as, but not longer than, the sternum, distinctly but slightly curved, and with the protarsi densely scopulate beneath. Tibiæ i. and ii. without dorsal apical spine. Leg iv. short, its protarsus not longer than the carapace.

Coloration of the female similar to that of the male, but the yellow chevrons on the abdomen are usually more distinct. Vulval area broader than long, but not so large in proportion as in *L. constricta*, with the stem of the ⊥-shaped process broad at its junction with the cross-piece and broadly dilate to its base. Leg iv. similar in proportion to that of the male, short, tibia and patella iv. and protarsus iv. being not longer than the carapace.

*Hab.* Mexico, Orizaba (*H. H. Smith*); Guatemala, Tecpan (*Stoll*), Cubilguitz (*Sarg*); Panama, Chiriqui (*Champion*).

### 11. **Lycosa constricta,** sp. n. (Tab. XXXI. fig. 19, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 9, ♀ 11 millim.

Coloration as in *L. brevitarsis* in both sexes, except that the central pale bar on the carapace is not narrowen at the cephalic region, but dilate, and occupies the whole ocular area. The dilatation is produced by the obliteration of the short dark lines and the fusion of the central portion with the lateral, short, curved, pale lines. This difference might be regarded as due to individual variation, were it not for the great difference in the form of the vulva.

*Hab.* Guatemala, Tecpan (*Stoll*).

### 12. **Lycosa longitarsis,** sp. n. (Tab. XXXI. fig. 20, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 11, ♀ 14 millim.

Colour very similar to that of *L. brevitarsis*, but on the whole paler; the carapace has the central line narrowed from the base forward, terminating in a sharp point between the posterior central eyes, with, usually, a small curved pale line on each side in the posterior cephalic portion; the submarginal pale bar is more distinct. The markings on the abdomen are paler, while, usually, the lanceolate bar is dark and followed to the spinners by a series of yellow chevrons, the anterior pair disconnected in the middle.

Structure also similar, but tibiæ i. and ii. usually with a small, dorsal, apical spine. Tarsi i. and ii. long, nearly one-half longer than the sternum, straight, slender, and with the protarsi scarcely scopulate beneath. Leg iv. long, the protarsus longer than the carapace, as also are tibia+patella iv.

Palpal bulb with a sharp barb-like spur similar in form to that of the allied species.

Coloration of the female similar to that of the male. Vulval area longer than broad, with the stem of the ⊥-shaped process more slender and longer in proportion, not dilate. Leg iv. longer in proportion; carapace shorter than patella and tibia iv. together, not longer than protarsus iv.

*Hab.* Mexico, Orizaba, Teapa (*H. H. Smith*); Guatemala, Tecpan (*Stoll*); Costa Rica, San José (*Rogers*); Panama, Chiriqui (*Champion*).

### 13. **Lycosa guttatula,** sp. n. (Tab. XXXI. fig. 21, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 22 millim.

Carapace deep brown, with a pale narrow submarginal bar, and a narrow central pale bar narrowing again suddenly behind the posterior eyes and terminating in a point behind the anterior central eyes. Abdomen brown, with the usual dark basal lanceolate band, but the other markings, if any, are indistinct. Ventral area rufous-grey, speckled with small, widely scattered, dark spots. Legs red-brown; sternum darker brown; coxæ red-brown, suffused apically with darker brown. Mandibles black, with a few pale hairs.

Vulval area longer than wide, the cavity broad, circular; stem of the central ⊥-shaped process slightly longer than the cross-piece, narrow, parallel-sided.

Tibia and protarsus i. rather shorter than tibia and protarsus iv.; carapace equal in length to the latter.

Anterior row of eyes nearly straight, almost as wide as the second row, whose eyes are rather over half a diameter apart.

*Hab.* Mexico, Amula (*H. H. Smith*).

### 14. **Lycosa uncata,** sp. n. (Tab. XXXI. figg. 22, 22 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 14 millim.

Carapace rich chocolate-brown, with a broad, ill-defined, marginal band of grey hairs and a central band of the same, narrow behind, gradually widening forward (slightly constricted at the base of the cephalic area, and again opposite the posterior eyes), occupying the entire ocular area; bearing in the postcephalic section a curved, dark, submarginal line on each side. Mandibles brown, with a line of fulvous hairs on the outer margins. Abdomen fulvous-grey, with an anterior rich brown shoulder-spot, continued, but more or less broken, along the sides to the spinners, where in the apical fourth section is a tuft of grey hairs, set in a brown spot; dorsally there is a central anterior brown lanceolate band, barbed on each side about the middle, rounded anteriorly, squarely truncate behind, followed by one or more small, triangular, brown spots above the spinners; lateral area grey; ventral area black, with a central, narrow, grey band extending from the genital rima to about one-third from the spinners. Sternum and coxæ black. Legs dull yellow-brown beneath, clothed above with fulvous-grey hairs.

Anterior row of eyes procurved. Tibiæ i. and ii. with an apical dorsal spine. Tibia of palpus twice as long as broad, one-third longer than the patella; tarsus almost as long as both these segments together. The barbiform process of the palpal bulb is stout, the barb blunt and uncate and, viewed from the outer side, very short; viewed from above and in front it presents itself as a broad blunt lamina, almost at right angles to its basal portion.

*Hab.* Mexico, Teapa (*H. H. Smith*).

### 15. **Lycosa scutulata.**

*Lycosa scutulata,* Hentz, Journ. Bost. Soc. Nat. Hist. iv. p. 390, t. 18. fig. 2 (1844) [1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 268 [2].

*Hab.* North America [1].—Mexico, Tepic [2].

Immature examples only recorded.

### 16. **Lycosa coloradensis.**

*Lycosa coloradensis,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 268 [1].

*Hab.* North America, Colorado [1].—Mexico, San Miguel de Horcasitas [1].

A female from Mexico (not quite adult), probably belonging to this species, is recorded.

### 17. **Lycosa adusta.**

*Lycosa adusta*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 268, t. 16. fig. 31 (♀)[1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 11 millim.

*Hab.* Mexico, San Miguel de Horcasitas[1].

### 18. **Lycosa concolor.**

*Lycosa concolor*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 269, t. 16. fig. 25 (♀)[1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 21·5 millim.

*Hab.* Mexico, Tepic[1].

### 19. **Lycosa persimilis.**

*Lycosa persimilis*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 270, t. 17. fig. 2 (♂ ♀)[1].

Type ♂, gynetype ♀, in coll. Calif. Acad. Sci. Total length, ♂ 10, ♀ 16 millim.

*Hab.* Lower California[1].—Mexico, Tepic[1].

### 20. **Lycosa injusta.**

*Lycosa injusta*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 270, t. 17. fig. 1 (♂)[1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 22 millim.

*Hab.* Mexico, Hermosillo, San Miguel de Horcasitas[1].

### 21. **Lycosa futilis.**

*Lycosa futilis*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 271, t. 16. fig. 32 (♂ ♀)[1].

Type ♂, gynetype ♀, in coll. Calif. Acad. Sci. Total length, ♂ 10·5, ♀ 11·2 millim.

*Hab.* Lower California[1].—Mexico, Orizaba, Motzorongo, Tepic[1].

### 22. **Lycosa mexicana.**

*Lycosa mexicana*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 271, t. 17. fig. 3 (♂ ♀)[1].

Type ♂, gynetype ♀, in coll. Calif. Acad. Sci. Total length, ♂ 14, ♀ 16 millim.

*Hab.* Mexico, Orizaba, Vera Cruz[1].

## PIRATA.

*Pirata*, Sundevall, Consp. Arachn. p. 24 (1833).

Type *P. piraticus* (Clerck). Sweden.

The species included in this genus may be recognized by the constantly present wedge-shaped patch in the centre of the pale band on the carapace, and by the long spines on the legs. They are always found in swampy localities, and are clothed with a thick coat of water-proof hairs.

Only a single species has hitherto occurred in Central America.

### 1. **Pirata felix.** (Tab. XXXI. fig. 23, ♀.)

*Pirata felix*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 243, t. 33. figg. 6, 6 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* Mexico, Atoyac in Vera Cruz (*H. H. Smith*[1]); Guatemala (*Sarg*).

## ARCTOSA.

*Arctosa*, C. L. Koch, Die Arachn. xiv. p. 123 (1848).

Type *A. cinerea* (Fabricius). Europe.

The spiders here included under *Arctosa* are congeneric with *Aranea cinerea*, Fabr. These, too, are species which are found close to the water-side, amongst the rocks and boulders of partially dried river-beds.

They may be distinguished from the other genera here referred to (except *Sosippus*) by the absence of the stout spine at the base of tibiæ iii. and iv.

The species known to me may be recognized as follows:—

*Males.*

i. Sternum yellow-brown. Carapace equal in length to or shorter than protarsus iv. Characteristic lamina of palpal bulb much more slender and forming three branches.
  *a.* Size larger: length 14 millim. Legs more densely clothed with water-proof hairs . . . . . *trifida*, sp. n.
  *b.* Size smaller: length 7 millim. Legs less densely clothed with water-proof hairs . . . . . *minuta*, sp. n.

ii. Sternum suffused with black. Carapace equal in length to the protarsus and half of tarsus iv. Characteristic lamina of palpal bulb much stouter, with a conspicuous, oblique, transverse carina terminating on the inner side in a blunt hook-like point . . . . . *cinerea*, Fabr.

*Females.*

i. Vulva with a decided ⊥-shaped central process, with the lateral cavities much smaller.
  *a.* Size larger: length 15 millim. Stem of the central ⊥-shaped process of vulva longer and narrower in proportion to the cross-piece . . . . . *trifida.*
  *b.* Size smaller: length 7 millim. Stem of the central ⊥-shaped process of vulva shorter and broader in proportion to the cross-piece . . . . . *minuta.*

ii. Vulva without a decided ⊥-shaped central process, but with two broad lateral cavities obliquely directed forward, separated by a very narrow septum . . *cinerea.*

Note.—*Trochosa mexicana* and *T. parva*, Banks, are unknown to me, and cannot be included in the Table. They are left for the present under *Arctosa*.

### 1. **Arctosa trifida,** sp. n. (Tab. XXXI. figg. 24, ♂; 25, 25 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 14, ♀ 15 millim.

Colour and pattern similar in both sexes. Carapace and legs olive-brown, mottled and annulated with grey.

Legs yellow, clothed with grey hairs, the femora with two distinct dorsal annuli and a faint basal dusky mark; the basal two-thirds of the patellæ brown; the tibiæ with a basal and subapical brown annulus; the protarsi with basal, median, and apical brown annulus.

Abdomen dark olive-brown, with an anterior white shoulder-spot on each side, encircled in front with black, followed by a series of indistinct pale spots on each side; ventral area and sternum pale yellow, with grey hairs.

For figures of the palpal organs and vulva, see Plate.

*Hab.* Mexico, Teapa (*H. H. Smith*); Guatemala, Santa Ana (*Sarg*), Guatemala city (*Stoll*).

Found under boulders of rock in a river-bed (*Sarg*).

### 2. **Arctosa minuta,** sp. n. (Tab. XXXI. figg. 26, ♂; 27, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 7, ♀ 7 millim.

Colour and pattern similar in both sexes. Carapace and legs dull brown, mottled and annulated with grey hairs. (In alcohol the pale mottlings appear dull yellow.) Sternum and ventral area of the abdomen dull yellow-white.

For figures of the palpal organs and vulva, see Plate.

*Hab.* Guatemala (*Sarg*).

Very similar in coloration to *A. trifida*, but much smaller, and with the central pale mottled portion on the carapace larger. The form of the vulva is variable, and the palpal organs very slender and difficult of observation.

### 3. **Arctosa cinerea.** (Tab. XXXI. figg. 28, ♂; 29, ♀.)

*Aranea cinerea,* Fabr. Ent. Syst. ii. p. 423[1].

*Lycosa cinerea,* Emerton, Trans. Conn. Acad. vi. p. 488, t. 47. figg. 3, 3 *a*, *b* (1885)[2].

*Trochosa cinerea,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 272[3].

*Hab.* North America, Massachusetts, Connecticut, and Indiana[2], California[3].—Mexico, Tepic, Orizaba, Vera Cruz[3].—Europe[1].

Our figures are taken from specimens found near the River Severn in Wales. I should doubt that Emerton's North-American examples are really conspecific with the European *A. cinerea* (Fabr.). Banks's *Trochosa cinerea* is, I suspect, identical with the *A. trifida* here described.

### 4. **Arctosa mexicana.**

*Trochosa mexicana,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 272, t. 17. fig. 4 (♀)[1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 9 millim.

*Hab.* Mexico, Tepic[1].

I do not know this species, and it may fall into the *Trochosa*-group of which *T. ruricola* (De Geer) is the type. According to Banks's description and figure, however, the vulva presents a transverse elliptical cavity, with apparently no ⊥-shaped process nor any dividing septum.

### 5. **Arctosa parva.**

*Trochosa parva,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 272 [1].

*Hab.* Lower California [1].—Mexico, Tepic [1].

## SOSIPPUS.

*Sosippus,* E. Simon, Ann. Soc. Ent. Fr. 1888, p. 205.

Type *S. mexicanus,* E. Simon. Mexico.

Posterior row of eyes slightly wider, and the middle row a little narrower, than the anterior, the posterior eyes being much larger and subequal, those of the anterior row, which is slightly procurved, being very small, the centrals slightly larger, the laterals prominent, situated on low tubercles. Tarsal claws three. Posterior spinners bi-articulate, the lower margin *tridentate* (at least in the examples before me, though Simon gives *quadridentate* as a generic character).

Tarsi and about half the protarsi of legs i., ii., iii. scopulate; protarsus iv. not, and tarsus iv. feebly, scopulate. The protarsi of all four pairs of legs with a small central apical spine beneath.

The spiders of this genus are very like *Agelenæ*, not only in the shape of their body and the appearance of the legs, but to some extent in their markings. Still more do they resemble them in habits, for the web consists of a very large sheet of fine silk spun over the bushes, with a tube-like tunnel running down into some place of safety. Their movements are exceedingly rapid, and one cannot at first sight believe that they are not true *Agelenæ*. One species I met with in abundance on the Amazons. They are all very large, some of them measuring 22 millim. in length.

### 1. **Sosippus mexicanus.** (Tab. XXXI. figg. 30, ♂; 31, 31 *a–c*, ♀.)

*Sosippus mexicanus,* E. Simon, Ann. Soc. Ent. Fr. 1888, p. 206 [1].

Type, ♀, in coll. E. Simon, total length 15·5 millim.; deuterotype, ♂, in coll. Godman & Salvin, total length 12 millim.

*Hab.* Mexico [1], Xautipa, Omilteme, Amula (*H. H. Smith*); Guatemala (*Sarg*).

I can scarcely doubt that our specimens belong to this species, which seems to be fairly common, and the statement that *Sosippus* has four teeth on the lower margin of the mandible may be incorrect.

## Fam. AGELENIDÆ.

The spiders usually referred to this family run almost imperceptibly through the Pisauridæ, and thus blend with the Lycosidæ. The eyes are, however, more pronouncedly in two rows, both more or less procurved, or the posterior sometimes recurved. There is always present in the male a tibial spur on the palpus, as in the Pisauridæ. The character by which Simon distinguishes the Agelenidæ from the Lycosidæ and Pisauridæ, viz. by the absence of the notch on the rim of the trochanter, is not constant, as in *Agelena labyrinthica* the emargination is quite evident.

The two genera, of which representatives have been found in Central America, are scarcely separable, their habits and general appearance being also very similar. They may, however, be roughly separated by the eye-formula.

GENERA.

A. Both rows of eyes only slightly procurved . . . . . TEGENARIA, Latr.
B. Both rows of eyes strongly procurved . . . . . AGELENOPSIS, Giebel.

## TEGENARIA.

*Tegenaria*, Latreille, Nouv. Dict. xxiv. p. 134, column 1, line 49 (1804).

Type *Tegenaria civilis* (Walck.)=*T. derhamii*, Scop. Europe.

The three species, one of which is well-known in the European and North-American fauna, may be recognized as follows:—

*Males.*

A. Abdomen dull white, with numerous obscure dusky spots. Tibia of palpus somewhat incrassate, with a short blunt spur at the outer apical angle. Palpal spine short, very stout, very strongly curved, its apex terminating on the anterior portion of the membranous sheath, itself short and inconspicuous . . . . . *derhami*, Scop.

B. Abdomen rich brown, with a central anterior pale yellow band, becoming very slender and tridentate behind. Tibia of palpus not incrassate, with a short, but sharp, apical spur, its apex slightly curved. Palpal spine very long, slender, encircling the whole tarsus beneath, its apex resting on the posterior cusp of the long conspicuous membranous sheath . . . . . *flexuosa*, sp. n.

*Females.*

A. Size much larger, 12 millim. Vulva consisting of a narrow, transverse, brown, chitinous piece, flanked on each side by a small sinuous cusp, on the posterior margin of the area . . . . . *derhami*.

B. Size much smaller, 6·5 millim. Vulva consisting of a transverse-oval cavity nearly filled by a transverse-oval plate (*fide* Banks) . . . . . *obscura*, Banks.

NOTE.—Adult females of the first-mentioned species alone occur in our collection.

### 1. **Tegenaria derhami.** (Tab. XXXI. figg. 32, ♂; 33, ♀.)

*Aranea derhamii*, Scopoli, Entom. Carn. p. 400 (1763)[1].

*Tegenaria derhami*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 230 (1898)[2]; Emerton, Trans. Conn. Acad. Sci. viii. p. 193, t. 7. figg. 6, 6 *a–c*[3], and ix. p. 411[4].

*Hab.* NORTH AMERICA, Canada[4], New England[3], California[2].—COSTA RICA (*Rogers & Tristan*).—EUROPE[1].

### 2. **Tegenaria flexuosa,** sp. n. (Tab. XXXI. figg. 34, 34 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

Legs yellow, annulated with black. Carapace brown, with a central pale band and broken lateral similarly coloured bands. Abdomen rich brown, speckled with pale yellow on the sides, with a central dorsal pale bar, broken anteriorly by two pairs of elongate dusky spots, attenuate behind, forming a very slender tridentate bar; ventral area with a broad brown central band, margined with pale yellow. Sternum brown, with a very small pale spot at the base of the labium and another more elongate one in the centre. The coloration of the two immature examples of the female sex is similar, but the dentated portion of the abdominal bar is more pronounced, and each of the first three dentations is enlarged at the apex.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 3. **Tegenaria obscura.**

*Tegenaria obscura,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 230, t. 14. fig. 26 (♀)[1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 6·5 millim.

*Hab.* Mexico, Sonoran region, San Miguel de Horcasitas [1].

## AGELENOPSIS.

*Agelenopsis,* Giebel, Zeitschr. f. ges. Naturwiss. xxxiii. p. 250 (1869).

*Melpomene,* O. P.-Cambridge, Biol. Centr.-Amer., Arach. Aran. i. p. 285 (1898).

Type of *Agelenopsis, A. albipilis,* Giebel, Illinois, U.S.A.; that of *Melpomene, M. elegans,* O. P.-Cambr., Mexico.

The spiders which are here referred to Giebel's genus differ from *Agelena* (type *A. labyrinthica*) chiefly in the relative proportion of the anterior eyes, the laterals being much larger than the centrals, whereas in *Agelena* they are subequal. Giebel gives an illustration of the eye-formula in his diagnosis.

In the female sex the segments of the posterior pair of spinners are equal in length; in the male the apical one is slightly the longer of the two.

The species known to me may be recognized as follows:—

*Males.*

A. Tibia of palpus with a strong spur on the outer distal margin, directed obliquely outward and backward.
  *a.* Central lobe of bulb short, inconspicuous, bluntly pointed at the apex. Lower anterior prominence of tibia of palpus bifid . . . . . *nova,* O. P.-Cambr.
  *b.* Central lobe of bulb much longer, conspicuous, dilate, hammer-headed at the apex. Lower anterior prominence of tibia of palpus bluntly pointed, not bifid . . . . . *marginata,* sp. n.

B. Tibia of palpus without any spur on the outer distal margin.
  $a^1$. Palpal bulb, viewed from the outer side, very much inflated, with a conspicuous, stout, black, spiraliform process at the apex. Bulb deeply bifid at the base on the inner side . . . . . *elegans,* O. P.-Cambr.
  $b^1$. Palpal bulb, viewed from the outer side, not inflated; apex without

conspicuous spiraliform process. Bulb not bifid at the base on the inner side.

$a^2$. Palpal bulb very complex, with a conspicuons, transverse, chitinous piece at the base, its inner anterior margin bearing two short adjacent spurs, besides other convoluted and pointed processes . *transversa*, sp. n.

$b^2$. Palpal bulb quite simple, without any transverse piece at the base, and without convoluted and pointed processes . . . . . *simplex*, sp. n.

*Females.*

A. Femora, and often the tibiæ also, annulated with dusky brown or black.

*a*. Carapace with a more or less distinct, broad, central, longitudinal, pale band, and broad marginal bands. Vulval area without any large, circular, central cavity.

$a^1$. Vulval area divided for two-thirds of its length by a broad central channel formed by a pair of chitinous lateral lobes.

$a^2$. Posterior margins of the lateral lobes uniformly rounded and blending with the posterior margin of the vulval area . . . *lobata*, sp. n.

$b^2$. Posterior margins of the lateral lobes terminating in a sharp point on each side, and extending beyond the posterior margin of the vulval area, with also a second blunt cusp farther along their margin . . . . . *cuspidata*, sp. n.

$b^1$. Vulval area not divided by a broad central channel.

$a^3$. Vulval area having towards its anterior margin a pair of large, deep, reniform cavities, separated in the middle by a broad chitinous septum, which expands posteriorly and laterally to form the margins of the cavities . . . . . *bicavata*, sp. n.

$b^3$. Vulval area without large cavities towards the anterior margin.

$a^4$. Vulval area with a large, deep, oval-rectangular cavity on the posterior margin, with anteriorly a narrow central septum . *cavata*, sp. n.

$b^4$. Vulval area with a small transverse-oval cavity on the posterior margin; the anterior margin of the latter bearing a pair of small, sharp, convergent cusps.

$a^5$. Transverse-oval cavity broader, filled in with a central, transverse, convex piece . . . . . *costata*, sp. n.

$b^5$. Transverse-oval cavity narrower, without any central, convex, transverse piece . . . . . *attenuata*, sp. n.

*b*. Carapace with a very narrow, pale, longitudinal, central line and broader marginal bands. Vulval area with a large, circular, central cavity . *penetralis*, sp. n.

B. Femora and tibiæ unicolorous brown.

$a^6$. Femora with a narrow, longitudinal, pale slash on the outer side . *variabilis*, sp. n.

$b^6$. Femora unicolorous brown, neither slashed nor annulate . . . . *glaucopis*, sp. n.

Note.—The form of the vulva in the genera *Agelena* and *Agelenopsis* being exceedingly variable, it is very difficult to be certain as to the specific distinctness of some of the allied forms. I do not know *A. orizaba* (Banks), and do not therefore include it in the Table.

1. **Agelenopsis nova.** (Tab. XXXI. figg. 35, 35 *a*, ♂.)

*Agelena nova*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 175, t. 22. figg. 5, 5 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

*Hab.* Guatemala, Vera Paz (*Sarg*[1]).

2. **Agelenopsis marginata,** sp. n. (Tab. XXXI. figg. 36, 36 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 9 millim.

Carapace brown, with a broad central and marginal white longitudinal band. Abdomen brown, with a broad, pale, central, longitudinal band, the anterior central third brown, the posterior portion dull red. Legs yellow-brown, femora indistinctly annulate.

For the palpal organs, which are quite characteristic, see the Table and Plate.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

3. **Agelenopsis elegans.** (Tab. XXXI. figg. 37, 37 *a*, *b*, ♂.)

*Melpomene elegans*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 285, t. 39. figg. 6, 6 *a–g* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 11·25 millim.

*Hab.* Mexico, Cuernavaca in Morelos (*H. H. Smith*[1]).

4. **Agelenopsis transversa,** sp. n. (Tab. XXXI. figg. 38, 38 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 milim.

Carapace brown, with a broad pale patch behind the eyes and a pale marginal band. Abdomen brown, with a pale central band, dentated in the posterior half. Legs dull yellow-brown, the femora very faintly annulated with darker brown.

For the palpal organs, see the Table and Plate.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

5. **Agelenopsis simplex,** sp. n. (Tab. XXXII. figg. 1, 1 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 9 millim.

Carapace brown, with a central and marginal pale band. Abdomen deep brown, with an indistinct, dentated, pale, central band. Legs brown, femora distinctly annulated with darker brown.

For the palpal organs, see the Table and Plate.

*Hab.* Guatemala (*Sarg*).

6. **Agelenopsis lobata,** sp. n. (Tab. XXXII. fig. 2, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

Carapace brown, with a broad central and marginal pale band. Sternum brown, with a narrow, central, pale band. Abdomen brown, with an indistinct, pale, dull red, central band. Legs yellow-brown, femora distinctly annulated with black.

For vulva, see the Table and Plate.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 7. **Agelenopsis cuspidata,** sp. n. (Tab. XXXII. fig. 3, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

Colour the same as in *A. lobata*.
For vulva, see Table and Plate.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

It is possible that *A. cuspidata* and *A. lobata* are forms of one species, but one needs a longer series, and also males taken with the females, before the matter can be decided.

### 8. **Agelenopsis bicavata,** sp. n. (Tab. XXXII. fig. 4, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

Carapace brown, with a very narrow, central, longitudinal, pale band, and a broad, similarly coloured, marginal band. Abdomen brown, with an indistinctly outlined, pale, central band, and a broad, central, dusky band beneath. Legs dull yellow-brown, distinctly but slightly annulate.
For vulva, see Table and Plate.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 9. **Agelenopsis cavata,** sp. n. (Tab. XXXII. fig. 5, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7·5 millim.

Colour mainly as in the preceding species. Abdomen with an indistinct, dull red, central band margined with a row of pale spots on each side, but without the central dusky band beneath.
For vulva, see Table and Plate.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 10. **Agelenopsis costata,** sp. n. (Tab. XXXII. fig. 6, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 13 millim.

Carapace brown, with an indistinct, broad, central and marginal band. Abdomen brown, with a broad, central, dentated, dull red band. Legs dark red-brown, femora distinctly annulated with black.
For vulva, see Table and Plate.

*Hab.* Costa Rica (*Rogers*).

### 11. **Agelenopsis attenuata,** sp. n. (Tab. XXXII. fig. 7, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7·5 millim.

The colours are unfortunately obliterated in the specimens received.
For vulva, see Table and Plate.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*); Guatemala (*Sarg*).

### 12. **Agelenopsis penetralis,** sp. n. (Tab. XXXII. fig. 8, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

Carapace brown, with a broad marginal and narrow central pale band. Abdomen brown, with a broad, indistinct, central, dorsal, dentated band, and a broad, central, dusky, ventral band. Legs dull yellow-brown, with the femora and tibiæ distinctly annulated.
For vulva, see Table and Plate.

*Hab.* Costa Rica, La Palma (*Tristan*).

### 13. **Agelenopsis variabilis,** sp. n. (Tab. XXXII. fig. 9, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 12 millim.

Carapace brown, with a broad central and marginal band of white hairs. Abdomen with a broad, central, red band margined with yellow-white; ventral area pale dun-colour. Legs deeply and almost entirely suffused with brown, the femora with a long pale slash on the outer side. The vulva appears to be exceedingly variable in shape, if I am correct in regarding all the examples before me as belonging to the same species: the commonest form has a convex black chitinous area, with a shallow triangular depression towards the posterior margin; for another form, that of the type-specimen, see the Plate (fig. 9).

*Hab.* Mexico, Omilteme, Chilpancingo (*H. H. Smith*), Xautipa (*Dugès*).

### 14. **Agelenopsis glaucopis,** sp. n. (Tab. XXXII. fig. 10, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 11 millim.

Carapace brown, with a broad central and marginal pale band. Abdomen with a broad, red, dorsal, central band margined with white. Legs red-brown, slightly suffused with darker brown, but not annulated, nor are the femora slashed with a pale line. Ventral area dun-coloured, with two longitudinal lines of spots, marking the outline of the area which forms a dusky band in some other species.

For vulva, see Plate.

*Hab.* Mexico, Cuernavaca (*H. H. Smith*).

### 15. **Agelenopsis orizaba.**

*Agelena orizaba,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 231, t. 14. fig. 30 (♀)[1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 9 millim.

*Hab.* Mexico, Orizaba[1].

The figure given by Mr. Banks is scarcely sufficiently detailed for the comparison of closely allied species.

## Fam. OXYOPIDÆ.

The species belonging to this family, like those of the Lycosidæ, have three claws, and the protarsi have, besides other lateral and dorsal spines, a single small apical spine beneath. The legs are themselves armed with numerous long spines, a long conspicuous one being particularly noticeable at the apex of the patella of all four pairs; but have no scopulæ beneath the tarsi. The eyes are more or less closely grouped, the lateral anteriors very large, the central anteriors very small; the posterior row is straight, slightly recurved, or more or less procurved; the anterior row straight or recurved. The clypeus is usually very high.

The spiders themselves move with great rapidity over herbage and the foliage of trees and shrubs.

Genera.

A. Palpal bulb of the male with a long variously formed "clavis" on the outer side at the base. Posterior row of eyes only very slightly procurved. Mandibles without any tooth on the lower margin . . . . . Peucetia, Thorell.

B. Palpal bulb without "clavis." Posterior row of eyes strongly procurved. Mandibles with a small tooth on the lower margin.
  i. Eyes of posterior row sub-equidistant . . . . . OXYOPES, Latr.
  ii. Central posteriors much further from each other than from the laterals.
    *a*. Anterior row of eyes distinctly recurved; eyes much closer together, each central eye being scarcely more than one and a half diameters from the adjacent lateral . . . . . OXYOPEIDON, O. P.-Cambr.
    *b*. Anterior row of eyes straight, the anterior margins of the centrals falling just inside the anterior margins of the laterals, supposing a tangential line to be drawn. Eyes widely separate, the centrals being distant from the adjacent laterals a space greater than that occupied by the two centrals together and the interval separating them . . . . . HAMATALIVA, Keys.

## PEUCETIA.

*Pasithea*, Blackwall, Ann. & Mag. Nat. Hist. (3) i. p. 427 (1858) (nom. præocc.).
*Peucetia*, Thorell, Europ. Spid. pp. 37, 106 (1869–70).

Type of *Pasithea* and *Peucetia*, *P. viridis*, Blackwall. Algeria.

The spiders belonging to this genus may be recognized by the slight procurvature of the posterior row of eyes, these latter being strongly procurved in *Oxyopes*, *Oxyopeidon*, and *Hamataliva*. The bulb of the male palpus, moreover, is furnished with a "clavis," while the mandibles have no tooth on the lower margin.

The cocoon, in the case of *Oxyopes*, is lenticular and spun up in an irregular web amongst leaves and twigs, while that of *Peucetia*, which has been mentioned by almost every author, is pear-shaped, but very stout and covered with little points, and is suspended by the stalk under a leaf, in an irregular network of crossing lines.

There are probably a great number of Neotropical forms belonging to this and the allied genera, but only about forty have hitherto been described.

The two species of which we have examples in our collection may be distinguished from each other by the following characters:—

### *Males.*

*a*. Tibia of palpus longer, four times as long as broad. Lateral lamelliform spine lying on the outer side of the bulb near the margin of the tarsal sheath, unibranchiate, dilate, and flat at the base, curved suddenly upward, its apex directed forward, forming a sinuously curved sharp point . . . . . *longipalpis*, sp. n.
*b*. Tibia of palpus shorter, scarcely three times as long as broad. Lateral lamelliform spine bibranchiate, slender throughout, the inner branch shorter and stouter, the outer longer and more slender, filiform, curving suddenly downward and then forward with a slightly sinuous curve . . *bibranchiata*, sp. n.

### 1. **Peucetia longipalpis,** sp. n. (Tab. XXXII. fig. 11, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 10 millim.

The coloration is much the same as in *P. bibranchiata*. Carapace and legs orange, sternum and abdomen green. Palpus of male quite distinct in structure from that of the next species: tibia four times as long as broad; the lateral lamelliform spine lying on the outer side of the bulb, near the base, is unibranchiate, broad, flat and dilate at the base, suddenly bent upward and narrowing, directed forward, its aculeate apex directed slightly downward. The long central process is shorter than it is in *P. bibranchiata*.

*Hab.* Mexico, Amula (*H. H. Smith*).

I am unable to identify any female satisfactorily as belonging to the males here described.

### 2. **Peucetia bibranchiata,** sp. n. (Tab. XXXII. figg. 12, 12*a*, ♂; 13, 13*a–c*, ♀.)

*Peucetia thalassina,* Keyserling, Verh. zool.-bot. Ges. Wien, xxvi. p. 702, t. 2. figg. 67, 68 (♂) (nec ♀) (1877) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 10, ♀ 15 millim.

Colour bright green, legs and carapace orange. In some examples of the female the orange and green are more or less suffused with a rosy tint, and the abdomen has a double dorsal series of elongate pink lines down the centre.

Palpus of male very characteristic: tibia not more than three times as long as broad; the lateral lamelliform spine at the base of the bulb on the outer side is bibranchiate, very slender throughout, the inner branch stouter, the outer longer, more slender, filiform (really a continuation of the inner folded back), curving suddenly downward and then straight forward, but with a slightly sinuous curve.

Vulva of the female very variable in form, consisting of a deep semicircular cavity anteriorly, a pair of variously formed deep orifices (one on each side) posteriorly, with a flat blunt spur, very variable in length, directed forward into the cavity. [Some specimens have no trace of these spurs, and they may belong to a different species.]

*Hab.* Mexico, Chilpancingo, Dos Caminos, Venta de Zopilote, Tierra Colorada, Amula, Atoyac, Jalapa (*H. H. Smith*), Oaxaca [1]; Guatemala (*Sarg*); Costa Rica, San José (*Tristan*).

The type (♂) and gynetype (♀) of the species identified by Keyserling as *P. thalassina* (Koch), from Oaxaca, are before me. Our males agree with the Mexican specimen of that sex, but the female named by this author appears to be not fully mature. It is not at all likely that the Central-American examples belong to Koch's species, the type (♀) of which was from San Domingo, West Indies, and I therefore give them a new name, more especially since it is impossible to state positively that our males are the true sexual complement of the female type.

### 3. **Peucetia quadrilineata.**

*Peucetia quadrilineata,* E. Simon, Bull. Soc. Zool. Fr. xvi. p. 111 (1891) [1].

Type, ♀, in coll. E. Simon. Total length 12 millim.

*Hab.* Costa Rica [1].

There are several adult females of a *Peucetia* from Costa Rica in our collection, but I am unable to identify any of them with certainty as Simon's species.

## OXYOPES.

*Oxyopes*, Latreille, Nouv. Dict. d'Hist. Nat. xxiv. p. 135 (1804).

Type *O. heterophthalmus* (Latreille). Europe.

The spiders of this genus differ from those of *Hamataliva* and *Oxyopeidon* in having the eyes of the posterior row equidistant, or nearly so; and from *Peucetia* in the strong procurvature of the posterior row of eyes, and in the males being without a "clavis" on the palpal bulb. There are not more than ten species described from the Neotropical region, three only of these being from Mexico or Central America.

Those known to me may be recognized as follows:—

*Males.*

A. Tarsus of palpus produced at the base on the outer side into a more or less conspicuous conical prominence.
   1. Conical prominence more conspicuous. Bulb of palpus with a pair of short, closely adjacent, hooked spines at the apex, plain, without any separate elongate processes. Tarsus of palpus deeply concave beneath, with the external side produced to form a blunt angle. Patella with a brush of stiff hairs along the anterior margin beneath . . . . . *gracilis*, Keys.
   2. Conical prominence less conspicuous. Bulb of palpus without hooked spines at the apex, but with two elongate processes. Tarsus of palpus not concave beneath. Patella without any fringe of stiff bristles . . *cornutus*, sp. n.

B. Tarsus of palpus not produced into a decided conical prominence at the base on the outer side.
   i. Lower spur on tibia of palpus divided into two or three distinct cusps.
      *a*. Lower spur of tibia divided into three cusps.
         1. Lower spur of tibia much longer and more developed. Central portion of bulb broad, long, and flat, terminating basally in a short hook, its apex directed inward (see figure) . . . . . *tricuspidatus*, sp. n.
         2. Lower spur of tibia much shorter and less developed. Central portion of bulb narrower and shorter, curving across the bulb, concave and squarely truncate at the apex (see figure) . . . . *globosus*, sp. n.
      *b*. Lower spur of tibia divided into two cusps.
         *a'*. Anterior branch of lower spur larger, broader, and more spatuliform. Carapace yellow, with a pair of fine black lines down the clypeus and mandibles in front. Sternum yellow. Abdomen olive-brown, with a pale, central, dorsal band . . . . . *bifidus*, sp. n.
         *b'*. Anterior branch of lower spur smaller, narrower, less spatuliform. Carapace, mandibles, and sternum deep brown. Abdomen deep black-brown, without any pale dorsal band . . . . . *bifissus*, sp. n.
   ii. Lower spur on tibia of palpus not divided into branches, but itself forming a single branch.
      *a*. Tibial spur much longer and strongly curved at the apex (see figure) . *tibialis*, sp. n.
      *b*. Tibial spur much shorter and not curved at the apex (see figure) . . *calcarifer*, sp. n.

*Females.*

A. Vulva consisting of a distinct raised chitinous convex tongue, its apex directed forward towards the base of the abdomen.
  1. Apex of chitinous tongue, seen from above, wedge-shaped, sharply pointed; seen in profile strongly geniculate and incurved under itself. *gracilis.*
  2. Apex of chitinous tongue, seen from above, dilate, semicircular, emarginate on each side; seen in profile bent downward, but only very slightly incurved . . . . . *lingulifer*, sp. n.

B. Vulva consisting of a more or less well-defined transverse-oval cavity.
  i. Clypeus and mandibles pale, without any narrow black lines in front running down the centre from the anterior central eyes.
    *a*. Clypeus much higher, nearly four times the width of the space occupied by the anterior central eyes. Chitinous margin of vulva widely open anteriorly . . . . . *clypeatus*, sp. n.
    *b*. Clypeus much lower, scarcely more than twice the width of the space occupied by the anterior central eyes. Chitinous margin of vulva either closed or only with a narrow opening anteriorly.
      1. Cavity larger in proportion and the chitinous rim much narrower, closed anteriorly. Legs not annulate . . . . . *globosus.*
      2. Cavity smaller in proportion and the chitinous rim much broader, with a narrow opening anteriorly. Legs annulated with dusky brown. *annulipes*, sp. n.
  ii. Clypeus and mandibles either entirely brown or with a narrow black line running down the centre from each anterior central eye.
    *a'*. Clypeus and mandibles pale, with a narrow black line.
      *a**. Vulval cavity open in front, with a fine chitinous margin encircling the posterior portion at the genital rima . . . . . *bifissus.*
      *b**. Vulval cavity closed in front, with a transverse chitinous margin posteriorly, but some distance in front of the genital rima . . . *transversus*, sp. n.
    *b'*. Clypeus and mandibles, as well as the whole carapace, deep brown . *brunneus*, sp. n.

Note.—The coloration and markings would probably furnish very reliable distinguishing characters; but in the examples under comparison so much of the scaly covering of hairs has been rubbed off that it would not be safe to make use of them in these tables.

I do not know either *O. flavus* or *O. acutus*, Banks, nor can I gather from his figures what are the differential characters.

### 1. **Oxyopes gracilis.** (Tab. XXXII. figg. 14, 14 *a*, *b*, ♂; 15, 15 *a*, *b*, ♀.)

*Oxyopes gracilis*, Keyserling, Verh. zool.-bot. Ges. Wien, xxvi. p. 698, t. 8. figg. 63 (♀), 64 (♀) (1877)[1].

*Oxyopes salticus*, E. Simon, P. Z. S. 1889, p. 889[2].

Type ♂, gynetype ♀, in coll. Keyserling, Mus. Brit. Total length, ♂ 5, ♀ 7 millim.

♂. Legs orange-yellow, the femora of all four pairs with a fine, often broken, narrow black line running down the outer side, but often entirely obliterate. Carapace orange-yellow, with two closely adjacent, longitudinal, central, and a more widely separate lateral band composed of brown scales. A narrow black line runs down the clypeus and anterior centre of the mandibles. Abdomen dark brown or black, with a well-defined dorsal band narrowly outlined with white anteriorly, thus enclosing a lanceolate black mark, the two white lines coalescing just behind the middle to form a narrow central line to the spinners; ventral area dark brown, with a black central band. Sternum yellow; palpi dark brown.

For the palpus, see the Table of the species.

♀. Pale orange-yellow, with four bands of fine brown scales down the carapace, alternating with bands of white scales. A narrow black line runs from each central anterior eye, across the clypeus, down the mandible for about two-thirds of its length. A fine black line runs down the front of femora i. and ii., and also, but less evidently, of iii. and iv.

Abdomen with a dark brown, lanceolate, anterior, central, dorsal bar; the lateral area more or less entirely covered with dark brown slashes, sometimes only evident in the apical half; the ventral area has a deep black, central, longitudinal band.

Vulva very characteristic, consisting of a short, stout, conical spur, broad and convex at the base, with a dark spot on each side, its apex directed forward, abruptly depressed towards the abdomen, and again abruptly curved in under, backward, where the apex is flattened out into a spatuliform lamina. The exact form of the process, however, is somewhat variable.

*Hab.* Mexico, Tierra Colorada, Vera Cruz, Teapa (*H. H. Smith*); Guatemala (*Sarg*). —South America, Taguara [1]; Antilles, St. Vincent [2].

The type and gynetype of *O. gracilis*, Keys., are before me, also the examples from St. Vincent identified by Simon as *O. salticus*, Hentz. These are identical; but since we cannot say what *O. salticus*, Hentz, may really be, I have adopted Keyserling's name, until some arachnologist can settle the point.

### 2. **Oxyopes cornutus,** sp. n. (Tab. XXXII. fig. 16, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

Colour variable. Carapace, legs, mandibles, and sternum orange-yellow. The carapace has traces of bands of brown scales, as in *O. gracilis*; a thin black line crosses the clypeus and runs down the mandible, in one example, uniting with the opposite one, and forming a broad dark band in the centre of each; otherwise, the rest of the carapace is clothed with white scales.

Legs orange-yellow, with a fine dark line (often obliterate) in front of the femora. Abdomen olive-green, with a pale, central, dorsal band narrowing to the spinners, often indistinct; ventral area with a broad, dark, central band.

Tibia of palpus convex beneath, not concave as in *O. gracilis*; patella without any fringe of stiff hairs; the bulb is without hooked spines at the apex, but has two elongate processes, the outer one the longest, the inner one, lying at about the centre of the bulb, being very short. Tarsus with a very short, inconspicuous, conical development at the base on the outer side.

*Hab.* Mexico, Tierra Colorada (*H. H. Smith*).

### 3. **Oxyopes tricuspidatus,** sp. n. (Tab XXXII. figg. 17, 17 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

Carapace orange-yellow, with a broad indistinct band of brown scales running across the clypeus from each anterior central eye and down the mandibles. Legs yellow, femora darker, especially beneath. Abdomen pale yellow, entirely clothed with white hairs dorsally, with a lateral and a central band beneath of brown or black scales. Sternum yellow.

The tibial spur of the palpus is "tricuspidate," the central cusp being the shortest, and sharp. The bulb presents a broad, central, flat process, terminating behind in a short hook.

*Hab.* Panama, Bugaba (*Champion*).

### 4. **Oxyopes globosus,** sp. n. (Tab. XXXII. figg. 18, 18 *a–c*, ♂; 19, 19 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4, ♀ 4·5 millim.

The whole spider is of a pale orange-colour, clothed with white hairs and scales, and the ventral area of the abdomen has an indistinct central band of dusky hairs.

The tarsus of the male palpus is very short and globular (for details, see figures).

Vulva consisting of a broad-oval concavity, somewhat variable in shape, with a very fine, narrow, chitinous, rim-like margin, and in most examples there are two pairs of well-defined spermathecal spots, beneath the surface, anteriorly.

*Hab.* PANAMA, Bugaba (*Champion*).

### 5. **Oxyopes bifidus,** sp. n. (Tab. XXXII. figg. 20, 20 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

Carapace and legs orange-yellow, more or less clothed with white scales, having a thin black line across the clypeus on each side and down the mandibles. Abdomen sooty-brown, with a central, dorsal, pale band, narrowing to a line above the spinners, its margins formed of white scales.

The lower branch of the tibial spur of the palpus is bifid, its anterior branch the broader of the two; the upper branch is also minutely bicuspidate.

*Hab.* MEXICO, Acapulco (*H. H. Smith*).

### 6. **Oxyopes bifissus,** sp. n. (Tab. XXXII. figg. 21, 21 *a*, ♂; 22, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4, ♀ 5 millim.

♂. Carapace, mandibles, and sternum deep mahogany-brown, the abdomen sooty-brown, all clothed with fine white hairs. Legs pale yellow.

For the palpus, see figures and Table of species.

♀. Carapace pale yellow, with a distinct, but ill-defined, band of brown hairs on each side of the central line, terminating in a darker black spot just beyond the central stria, but not nearly reaching the posterior margin. The central pale area has an indistinct median band of brown hairs, slightly dilate anteriorly, while a narrow band of brown hairs runs backward towards this central band from each central posterior eye. The clypeus and mandibles have a narrow black line running down their centre in front from each central anterior eye.

Abdomen with a very broad, pale, central, dorsal band gradually narrowing to the spinners, with the anterior lanceolate bar outlined with dusky brown; lateral areas suffused and spotted with brown, with a pair of parallel, oblique, narrow, white bars about the middle; ventral area more or less suffused and spotted with brown, but a broad, dark, central band is more conspicuous. Legs pale yellow, the femora more or less spotted with black.

For the vulva, see figures and Table of species.

*Hab.* MEXICO, Teapa (*H. H. Smith*).

### 7. **Oxyopes tibialis,** sp. n. (Tab. XXXII. figg. 23, 23 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

Carapace and legs orange-yellow, a fine black line on each side crossing the clypeus and running down the mandibles, and a narrow black line running down the anterior side of the femora of all four pairs of legs. Abdomen dull brown, with a pale, narrow, central, dorsal band; pale below, with a broad, central, dark band, or, in one example, entirely black.

The tibia of the palpus has a long conspicuous process beneath it, strongly curved and concavo-spatulate at the apex.

*Hab.* GUATEMALA (*Sarg*).

### 8. **Oxyopes calcarifer,** sp. n. (Tab. XXXII. fig. 24, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4 millim.

Carapace, palpi, mandibles, and sternum brown, more or less clothed with grey hairs and scales. Legs yellow; femora with a double row of indistinct dusky speckles in front of each. Abdomen olive-green, clothed with white iridescent scales.

Tibia of palpus with a stout conspicuous process beneath the segment, its apex concave, but not nearly so strongly curved as in *O. tibialis*.

*Hab.* Costa Rica (*Rogers*).

### 9. **Oxyopes lingulifer,** sp. n. (Tab. XXXII. figg. 25, 25 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

If the clothing had not been rubbed off, this spider would have been orange-yellow, with white scales, but without any dark bands on the carapace or dark scales on the lanceolate abdominal band or on the lateral areas; but it has a fine black line running from each anterior central eye across the clypeus and down the mandible, and also a broad, central, black band on the ventral area of the abdomen, as in *O. gracilis*.

The vulva, however, is quite characteristic, consisting of a broad tongue-like lamina, convex at the base, with a lateral expansion on each side; the central portion becoming suddenly narrower, then widening out at the apex into a broad semicircular plate, its lateral angles very sharp, and its apex curving abruptly downward towards the abdomen.

*Hab.* Costa Rica (*Rogers*).

### 10. **Oxyopes clypeatus,** sp. n. (Tab. XXXII. fig. 26, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7·5 millim.

The clothing has unfortunately been much obliterated from the two examples of this species before me, but the whole spider is of a pale orange-colour, clothed with white and brown scales.

The abdomen is attenuate towards the apex, having a patch of brown scales on each side at this point, and also a central band of the same on the underside.

Vulva consisting of a broad oval-rectangular cavity, widely open in front, the floor of the cavity having a wedge-shaped, convex, central portion, with a deep channel within the lateral margins.

*Hab.* Panama, Bugaba (*Champion*).

### 11. **Oxyopes annulipes,** sp. n. (Tab. XXXII. fig. 27, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

Carapace orange-brown, entirely clothed with white scales; mandibles and clypeus without any black line. Abdomen clothed dorsally with white scales, with two brown spots, one on each side, just behind the middle, two oblique lateral bands of brown scales in the apical half, and a broad, central, black band on the ventral area. Legs orange-yellow, more or less clothed with white scales, the femora with a subapical, and the tibiæ with a basal, dusky brown annulus.

Vulva consisting of a broad, transverse-oval, convex, chitinous plate, with a deep central concavity, open in front, its margins being much broader than in the allied species.

*Hab.* Mexico, Amula (*H. H. Smith*).

### 12. **Oxyopes transversus,** sp. n. (Tab. XXXII. fig. 28, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

Carapace orange-yellow, with two closely adjacent longitudinal central, and a more widely separate band of brown scales on each side. A narrow black line runs down the clypeus and the centre of the mandibles. Legs orange-yellow, the femora of all four pairs with a narrow, more or less broken, black line running down the outer side. Abdomen with a broad, pale, central, longitudinal, dorsal band, showing the white lines surrounding the usual lanceolate area; lateral area suffused and spotted with brown, with two fine, parallel, oblique, white slashes about the middle; ventral area pale, sparsely spotted with brown, with a broad, central, longitudinal, dark brown band.

For the vulva, see figures and the Table of species.

*Hab.* Mexico, Teapa (*H. H. Smith*).

### 13. **Oxyopes brunneus,** sp. n. (Tab. XXXII. fig. 29, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* Mexico, Atoyac in Vera Cruz (*H. H. Smith*).

The scales have been almost entirely rubbed off from the single specimen received of this species, and with these the colour and pattern have vanished; but the form of the vulva is quite distinct from that of any other *Oxyopes* in the collection before me. The general ground-colour is deep brown, whereas that of all the other members of the genus here described is yellow or orange.

### 14. **Oxyopes flavus.**

*Oxyopes flava,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 278, t. 17. fig. 28 (♀) [1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 7·5 millim.

*Hab.* Lower California [1].—Mexico, Tepic [1].

### 15. **Oxyopes acutus.**

*Oxyopes acutus,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 279, t. 17. fig. 27 (♀) [1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 7 millim.

*Hab.* Lower California [1].—Mexico, Hermosillo [1].

## OXYOPEIDON.

*Oxyopeidon,* O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 139 (1894).
*Oxyopedon,* E. Simon, Hist. Nat. Araign. éd. 2, ii. p. 380 (1898).

Type *O. putum*, O. P.-Cambridge. Central America.

*O. putum* is here selected as the type, since the species first described (*O. facile*, O. P.-Cambr.) belongs to *Hamataliwa*, Keys. The genus *Oxyopeidon* is distinguished from *Peucetia* by its strongly procurved posterior row of eyes, from *Oxyopes* by the greater separation of the posterior central eyes, and from *Hamataliwa* by the closer grouping of the anterior eyes, and the fact that these form a recurving line, the eyes being also equidistant from each other.

The females of the species known to me may be distinguished as follows, *O. putum* and *O. flebile* being alone represented in the male sex:—

*Females.*

A. Vulval area with a triangular tongue at the posterior margin, or with a deep, central, posterior cavity.

i. Vulval area with a broad, triangular, pale yellow tongue, its apex lying on the posterior margin, its basal angles forming a more or less deep fovea on each side . . . . . *putum,* O. P.-Cambr.

ii. Vulval area with a deep, central, oval, or semicircular cavity towards the posterior margin.

1. Central posterior cavity elongate-oval, or pointed posteriorly; its broad chitinous boundaries, slightly sinuous at the sides, somewhat bilobate in the centre posteriorly, trianguliform, anteriorly embedded in a deep, black, chitinous cavity on each side, the central cavity appearing of a pale yellow colour . . . . . *flebile*, O. P.-Cambr.

2. Central posterior cavity semicircular, its chitinous boundaries regularly semicircular, not bilobate behind, and the lateral cavities absent or only very slightly indicated . . . . . { *lætum*, O. P.-Cambr. / *subfacile*, O. P.-Cambr.

B. Vulval area without any tongue or central posterior depression, simply an oval, elongate, shallow cavity, thickly clothed with white scales, the margins forming a narrow chitinous rim, slightly emarginate laterally and prominent posteriorly in the centre . . . . . { *molestum*, O. P.-Cambr. / *difficile*, O. P.-Cambr.

Note.—The scales are in most cases rubbed off, so that the characters (probably very good ones) which might be drawn from the pattern and coloration are not available. I am unable to separate satisfactorily *O. lætum* from *O. subfacile*, or *O. molestum* from *O. difficile*; but it is not possible to arrive at any definite conclusion without further material.

### 1. **Oxyopeidon putum.** (Tab. XXXII. figg. 30, 30 *a*, *b*, ♂; 31, 31 *a*, ♀.)

*Oxyopeidon putum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 140, t. 16. figg. 7, 7 *a–e* (♂), 8, 8 *a–c* (♀) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5·75, ♀ 7 millim.

*Hab.* Panama, Bugaba (*Champion* [1]).

The vulva of the female in this species varies slightly in appearance in examples of different degrees of maturity, but is otherwise quite characteristic and constant. The male can be recognized by the form of the tibial process of the palpus, there being a characteristic sharp spur set at right angles to the segment on the outer side, with a broader bifid lamina further forward near the base of the tarsus, the tibia itself being concave on the outer side.

### 2. **Oxyopeidon flebile.** (Tab. XXXII. fig. 32, ♀.)

*Oxyopeidon flebile*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 141, t. 16. figg. 9, 9 *a–c* (♀) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 6, ♀ 9 millim.

*Hab.* Panama, Bugaba (*Champion* [1]).

### 3. **Oxyopeidon lætum.** (Tab. XXXII. fig. 33, ♀.)

*Oxyopeidon lætum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 142, t. 16. figg. 10, 10 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 5·75 millim.

*Hab.* Mexico, Dos Caminos in Guerrero (*H. H. Smith* [1]).

This species is much smaller than *O. subfacile*, O. P.-Cambr., but otherwise I can find no really good distinguishing character between the two.

### 4. **Oxyopeidon subfacile.** (Tab. XXXII. figg. 34, 34 *a*, ♀.)

*Oxyopeidon subfacile*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 141, t. 16. figg. 5, 5 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*[1]).

Only separable from *O. lætum* by its much larger size. It is represented by a single specimen in the collection before me.

### 5. **Oxyopeidon molestum.** (Tab. XXXII. fig. 35, ♀.)

*Oxyopeidon molestum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 141, t. 16. figg. 15, 15 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 5·75 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*[1]).

There is no anterior semicircular tongue in the vulva of this spider, as depicted on Tab. XVI. of Vol. I. of this work, and I therefore give a fresh drawing of it. A single specimen only has been received.

### 6. **Oxyopeidon difficile.**

*Oxyopeidon difficile*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 142, t. 16. figg. 13, 13 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*[1]).

Whether this species is really distinct from *O. molestum*, O. P. Cambr., I cannot say, but the vulva at all events presents no tangible difference which I can appreciate.

## HAMATALIWA.

*Hamataliwa*, Keyserling, Verh. zool.-bot. Ges. Wien, xxxvii. p. 457 (1887).
*Emmenophrys*, E. Simon, Hist. Nat. Araign. éd. 2, ii. p. 380 (June 1898).

Type of *Hamataliwa*, *H. grisea*, Keys. (♀), N. America; of *Emmenophrys*, *E. porcatus*, E. Simon (♀), Brazil.

The type-species of the genus *Hamataliwa* is before me, and it corresponds exactly with the diagnosis and the figure of the eyes of *Emmenophrys*.

The anterior central eyes are very close together, far remote from the anterior laterals, and are situated on a line touching the anterior margins of the latter; the posterior centrals are also much further apart proportionately than in *Oxyopeidon*. The only species known to me from Central America is *H. facile* (O. P.-Cambr.).

1. **Hamataliwa facilis.** (Tab. XXXII. figg. 36, 36 *a*, *b*, ♀.)

*Oxyopeidon facile,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 140, t. 16. figg. 6, 6 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

*Hab.* Mexico, Chilpancingo in Guerrero (*H. H. Smith* [1]).

## Fam. SENOCULIDÆ.

Eye-formula somewhat resembling that of *Ctenus*: anterior row very strongly recurved, the centrals situated close to the anterior margin of the clypeus, the laterals just in front of the posterior laterals, scarcely visible: posterior row slightly recurved, eyes larger, centrals nearer to each other than to the laterals. Protarsi i. and ii. without central apical spines beneath. Tarsi with three claws, not scopulate beneath, and without claw-tufts. Tibiæ i. and ii. with from 4–10 (*Stenoctenus*, Keys.), protarsi i. and ii. with 5–9 pairs of long spines beneath.

Thirteen species only belonging to this family have been described, nearly all from Tropical America. The spiders themselves have the habit of lying quite flat on the bark of trees, moving with great rapidity, being remarkably Sparassiform in appearance, and they make an elongate silken egg-cocoon.

### SENOCULUS.

*Senoculus,* Taczanowski, Horæ Soc. Ent. Ross. ix. p. 108 (1872).
*Labdacus,* O. P.-Cambridge, P. Z. S. p. 118 (1873).
*Stenoctenus,* Keyserling, Verh. zool.-bot. Ges. Wien, xxix. p. 340 (1880).
*Neothereutes,* Holmberg, Bol. Acad. Nac. Cienc. Cordoba, v. p. 35 (1883).

Type of *Senoculus*, *S. maronicus*, Tacz., Guiana; of *Labdacus*, *L. monastoides*, O. P.-Cambr., Brazil; of *Stenoctenus*, *S. gracilis*, Keys., Peru; of *Neothereutes*, *N. darwini*, Holmb., Argentine Republic.

There is but this one genus belonging to the family Senoculidæ, unless the species described under *Stenoctenus*, possessing 9–10 long spines beneath tibiæ i. and ii., be regarded as forming a convenient generic group.

The Central-American forms known to me can be recognized as follows:—

*Males.*

*a.* Apex of lamina round the inner anterior portion of the bulb of the palpus much broader and more evidently bifurcate . . . . . *prolatus,* O. P.-Cambr.

*b.* Apex of lamina round the inner anterior portion of the bulb of the palpus much narrower and slightly bifid, but simply canaliculate . *canaliculatus,* sp. n.

*Females.*

Tibiæ i. and ii. with 4—4, and protarsi i. and ii. with 5—5, long spines beneath.

*a*. External sclerites of vulva evenly rounded on the outer margins, sinuously concave on the inner margins, their anterior end hooked, but very narrow, and very sharp at the apex, with a minute cusp on the anterior margin . . . . . *prolatus.*

*b*. External sclerites of vulva emarginate on the outer margins, evenly convex on the inner margins, their anterior end forming a broad hook, not very sharp at the apex, without any minute cusp on the anterior margin. . . . . *canaliculatus.*

Note.—*S. purpureus* (E. Simon) is unknown to me, nor are the characters given in the description sufficient to enable one to identify it or include it in the Table.

1. **Senoculus prolatus.** (Tab. XXXIII. figg. 1, 1 *a*, *b*, ♂; 2, ♀.)

*Labdacus prolatus,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 218, t. 28. figg. 3, 3 *a–f* (♂)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 10, ♀ 12 millim.

*Hab.* Mexico, Atoyac in Vera Cruz (*H. H. Smith*[1]); Guatemala (*Sarg*).

2. **Senoculus canaliculatus,** sp. n. (Tab. XXXIII. figg. 3, ♂; 4, 4 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 8, ♀ 10 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*); Guatemala (*Sarg*); Panama, Bugaba (*Champion*).

The females from Mexico may prove to belong to a different species, when more material is available for examination.

3. **Senoculus purpureus.**

*Labdacus purpureus,* E. Simon, Bull. Soc. Zool. Fr. v. p. 155 (1880)[1].

Type, ♀, in coll. E. Simon. Total length 8·5 millim.

*Hab.* Panama[1].

This species is very likely identical with the preceding, but without figures it is almost impossible to identify it.

## Fam. HERSILIIDÆ.

The spiders belonging to this family probably furnish another instance of the survival of a few examples of an ancient group, of which the greater number of the species have long since died out, together with the connecting-links, which might have given a clue to their relation to other existing groups. They sit squatting close to the bark of trees and move with great rapidity, after the manner of the species of the genus *Philodromus.* The tarsal claws are three and the eyes eight in number (see figures).

## TAMA.

*Tama*, E. Simon, Ann. Mus. Civ. Genova, xviii. p. 256 (1882).

Type *T. edwardsi* (Lucas). Algeria.

The genus *Tama* differs from *Hersilia* of Savigny in having the protarsi of all four pairs of legs uniarticulate. The apical segment of the posterior pair of spinners is exceedingly long, as in *Hersilia*, but thus differing from *Hersiliola*, E. Simon. The protarsi, however, of *Tama* are very weak at about the same point where they are articulate in *Hersilia*, a weakness which will probably in time produce a definite biarticulation.

The males of the two species known to me may be distinguished as follows :—

*a*. Central lamelliform process of bulb of palpus concave, the upper portion somewhat hammer-headed, the lower portion not sharply pointed . . . . . *mexicana*, O. P.-Cambr.

*b*. Central lamelliform process of bulb of palpus concave, but the upper portion not hammer-headed, the lower portion sharp, with a deep circular emargination between . . . . . *forcipata*, sp. n.

### 1. **Tama mexicana.** (Tab. XXXIII. figg. 5, ♂; 6, 6 *a–c*, ♀.)

*Hersilia mexicana*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 107, t. 14. figg. 6, 6 *a–c* (♂), 7, 7 *a* (♀) [1].

*Tama mexicana*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 211 [2].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5·75, ♀ 8 millim.

*Hab.* Mexico, Amula (*H. H. Smith* [1]); Panama, Bugaba (*Champion*).

No definite locality was given by Banks [2].

### 2. **Tama forcipata,** sp. n. (Tab. XXXIII. fig. 7, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5·5 millim.

*Hab.* Guatemala (*Sarg*).

The difference between this species and *T. mexicana* has been pointed out in the Table, and can be clearly seen by reference to the figures.

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NOTE.

In placing the various families of cribellate forms of the Araneæ together in the present work, it must be understood that this arrangement is made simply for convenience of reference, since all the species included in them possess at least one character in common, viz. a cribellum and correlated calamistrum. With regard to their true systematic position, two theories may be advanced:—(1) The cribellum,

specialized as we now know it, is a very ancient organ, antedating, not only in its origin, but in its actual functional specialization, the division of the Araneæ into the various broad families at present recognized. If we hold this view, we may regard all the spiders in which the *cribellum* is now specialized as the offshoots of some one or more ancestral forms, divergent in this particular respect from the main body in which no specialized *cribellum* was developed. The pair of rudimentary abdominal appendages whence the cribellum was developed would of course have been possessed by all forms without exception. All subsequent divergence of the *cribellate* forms into widely differing genera or groups, such as *Hypochilus*, *Filistata*, *Œcobius*, *Uloborus*, *Zorocrates*, *Psechrus*, *Amaurobius*, &c., would therefore be due to subsequent environmental action and reaction.

We should have to explain, too, the extraordinary structural resemblances between, for instance, *Acanthoctenus* (cribellate) and *Acantheis* (non-cribellate); *Psechrus* and *Tegenaria*; *Amaurobius* and *Cœlotes*; *Zoropsis*, *Zorocrates*, and the Drassids, *cribellate* and *non-cribellate* forms respectively; and many others, as cases of coincidental convergent development, under similar conditions, of two distinct branches of spider-forms, long ago widely divergent, reapproaching each other in the present plane of existence owing to passage through similar environmental influences.

If this theory be accepted, with the assumptions necessary to its consistency, then we shall, as Simon has done, divide the Araneæ into "Cribellatæ" and "Ecribellatæ."

But if not, there is an alternative theory (2), that the cribellum is a comparatively recent specialization of the anterior surviving pair of abdominal appendages possessed originally by all early forms, at any rate long post-dating the conditions under which the divergence into the present groups was initiated.

If we accept this view, we shall have no difficulty in accounting for the extraordinary resemblances noted above, and we shall find our conclusion more in accordance with the evidence at present available, furnished by the *cribellum*, the *intermediate organ*, and the *vestigial colulus*.

One must admit, however, that in this case we shall have a similar difficulty in explaining how these rudimentary appendages should acquire a specialization so very similar in character in such widely divergent groups as are represented by *Hypochilus*, *Filistata*, *Deinopis*, &c., especially when correlated with another organ, the *calamistrum*, situated on almost exactly the same portion of the same segment of the posterior legs. In all probability, however, the abdominal appendages (which remain in full evidence in *Liphistius*) were amongst all ancestral forms more or less adapted, in connection with internal glands, for secreting and exuding silk; and, in certain cases, circumstances favoured the correlative specialization of the cribellum in connection with the *calamistrum*, and the latter in the exact position we find it, because this happens to be the only position in which hairs (becoming a row of specialized bristles) could be swept across the organ and facilitate the dispersal of the silk.

We are thus compelled to choose between the probability of a convergence in general characters amongst members of originally widely divergent families, or the probability of a sporadic specialization of two appendages (possessed by all the members of the original phylum) cropping up here and there and themselves structurally converging towards a very similar type.

Personally, I am of opinion that the probability lies with the second theory and that the evidence also tends strongly in this direction; and although it might be much more convenient, as in the first case, to place the "Cribellates" together as distinct from the "Ecribellates," I cannot believe that this course furnishes as natural a classification as that represented in the second case. It seems more probable that the calamistrum and cribellum have been independently developed and specialized in different families than that members of groups ancestrally widely divergent should have converged and assumed general characters so similar as to be scarcely distinguishable from each other.

## Fam. ZOROPSIDÆ.

Cribellum and calamistrum present. Eyes 8, in two transverse, more or less parallel rows. Tarsal claws 2, with rudimentary third claw present. Tarsi and protarsi i. and ii. densely scopulate beneath, continued to form a false claw-tuft on each side, but without true claw-tuft. Tarsi iii. and iv. densely scopulate on each side, but with a broad band of dense fine hair running through the centre.

Tibiæ i. and ii. with 2—2—2—2—2 spines beneath (or sometimes 4 spines only on the outer side), the last pair apical. Calamistrum consisting of a small dense cluster of curving bristles, occupying, approximately, the second apical fifth of the inner side of protarsus iv.

Spinners 6; posterior pair slightly longer than the anterior, terminating in a short conical second segment; anterior pair shorter, larger, squarely truncate at the apex; median pair short and laterally compressed. The cribellum consists of a pair of oval-elongate, shallow, chitinized concavities, divided from each other by a narrow smooth septum. Mandibular teeth variable, three on upper margin and four on lower margin of fang-groove.

Eyes in two rows, both slightly procurved; eyes all subequal, centrals of posterior rows closer, three-fourths of a diameter apart, one and three quarters from the laterals. Eyes of anterior row equidistant; laterals three-fourths of a diameter apart. Palpal claw of female obsolete.

### ZOROCRATES.

*Lycodrassus*, L. Koch, Die Drassiden, Analytical Table, p. 2 (1866) *.

*Zorocrates*, E. Simon, Ann. Soc. Ent. Fr. 1888, p. 211.

*Satricum*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 99 (1892) †.

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* The generic name *Lycodrassus* was published in 1866, but without any typical species being referred to it, and it cannot therefore take precedence of *Zorocrates*. A spider labelled *Lycodrassus robustus*, L. Koch, from Cordova, Mexico, type, is contained in the Keyserling collection in the British Museum. Dr. L. Koch writes me that "A detailed description of this species was *printed*, but never published, and the specimen in the Keyserling collection is the type of this description." The spider itself is one of the Cribellate forms.

† The name *Satricum* has been accidentally omitted by Simon in his Index to the Hist. Nat. Araign. éd. 2, i. p. 1081.

The generic characters are given under those of the family and do not need repetition here.

The species known to me may be recognized as follows :—

*Males.*

A. Size much larger. Tibia of palpus twice as long as broad. Central process of bulb slender, falciform, with a small barb on the inner margin . . . . . *fuscus*, E. Simon.

B. Size much smaller. Tibia of palpus scarcely longer than broad. Central process of bulb not falciform, bibranchiate . . . . . *mistus*, O. P.-Cambr.

*Females.*

A. Size much larger. Vulval area much broader than long, with a broad, anterior, triangular, chitinous plate having a central semicircular concavity . . . . . *fuscus*.

B. Size much smaller. Vulval area slightly longer than broad, with, anteriorly, a narrow, semicircular, chitinous margin enclosing a shallow concavity . . . . . *mistus*.

### 1. **Zorocrates fuscus.** (Tab. XXXIII. figg. 8, 8 *a*, ♂ ; 9, 9 *a–d*, ♀ .)

*Zorocrates fusca*, E. Simon, Ann. Soc. Ent. Fr. 1888, p. 212 [1].

*Satricum gnaphosoides*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 99, t. 13. figg. 4, 4 *a–e* (♂), 5, 5 *a* (♀) [2].

*Lycodrassus robustus*, L. Koch, in litt.[3]

Type of *Z. fusca* ♂, gynetype ♀, in coll. E. Simon ; that of *S. gnaphosoides*, ♂ & ♀, in coll. Godman & Salvin ; that of *L. robustus*, ♀, in Mus. Brit. Total length, ♂ 20, ♀ 24 millim.

*Hab.* Mexico, Cordova (*coll. Keyserling* [3]), Amula, Omilteme, Chilpancingo, Chiapas (*H. H. Smith*) ; Guatemala, Tactic (*Sarg* [2]) ; Panama, Bugaba (*Champion*).

### 2. **Zorocrates mistus.** (Tab. XXXIII. figg. 10, 10 *a*, ♂ ; 11, ♀ .)

*Zorocrates mistus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 176, t. 21. figg. 9, 9 *a–g* (♂), 10, 10 *a* (♀) [1].

*Rubrius mordax*, O. P.-Cambr. loc. cit. p. 279, t. 37. figg. 1, 1 *a–e* (♀) [2].

Type of *Z. mistus* ♂, gynetype ♀, total length, ♂ 9, ♀ 10 millim. ; that of *R. mordax*, ♀, total length 10 millim. : in coll. Godman & Salvin.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith* [1 2]).

## Fam. ACANTHOCTENIDÆ.

Tarsal claws two in number ; claw-tuft present. Calamistrum and cribellum present. Eyes in three rows, 2, 4, 2, as in the fam. Ctenidæ. Carapace compressed, abruptly precipitous posteriorly, often deeply impressed behind the cephalic region, hence often gibbous in the region of the central stria. Labium half the length of the maxillæ. Maxillæ long, straight, emarginate on the outer side, dilate and obliquely

truncate at the apex. Each fang-groove of mandibles with three teeth. Legs spinose; tibiæ i. and ii. with 7–9 pairs of long movable spines beneath; protarsi i. and ii. with four pairs of long spines beneath. Abdomen with small pencils of fine hairs arranged longitudinally down the dorsal and lateral areas. Sternum nearly circular. Palpus of female bearing a pectinated claw. Calamistrum consisting of a small oval tuft of fine curved hairs on the second fifth of protarsus iv. from the basal end. Cribellum consisting of a pair of oval-elongate or triangular concavities divided by a more or less distinct narrow septum.

One genus only of this family is known, exclusively confined to the Neotropical region, where there have hitherto been taken but four species—one on the Lower Amazons, a second at Pernambuco, the third in Mexico and Guatemala, the fourth in various parts of Central America. One or other of the latter species has also been recorded from Venezuela and Ecuador.

## ACANTHOCTENUS.

*Acanthoctenus*, Keyserling, Verh. zool.-bot. Ges. Wien, xxvi. p. 693 (1876).

Type *A. spinigerus*, Keyserling (♂). Mexico.

The generic characters will be found amongst those of the family. The spiders themselves live under the bark of trees or beneath stones, constructing a loose web, clothed with a flocculent silk. They squat flat against the surface, after the manner of the Sparassids, and move with great rapidity when disturbed.

Two species are known to me as occurring in Central America. They may be distinguished as follows:—

### *Males.*

*a*. Tibia of palpus, seen from above, scarcely longer than the patella, curving outward and distinctly gibbous at the middle of the outer side. Tibial spur stouter, its point blunt and directed at right angles outward . . . . *spinigerus*, Keys.

*b*. Tibia of palpus, seen from above, distinctly longer than the patella, parallel-sided, straight, not gibbous on the outer side. Tibial spur more slender, more acutely pointed, directed obliquely forward . . . . . *spinipes*, Keys.

### *Females.*

*a*. Vulval area narrower anteriorly, but the central pale portion is broader at the posterior margin . . . . . *spinigerus*.

*b*. Vulval area broader anteriorly, but the central pale portion narrows towards the posterior margin . . . . . *spinipes*.

Note.—I am not at all confident that the two forms of the female vulva here figured belong to distinct pecies. Neither, in any case, can I be sure to which of the two males here distinguished these females belong, whether they represent one or two species. If they are the sexual complement of *spinigerus*, Keys., then this name has priority and *spinipes* becomes its synonym, and the male here referred to *spinipes* requires another name. If, however, the females are all the sexual complements of this latter male form then the name *spinipes* will stand and the male *spinigerus* will be without its sexual complement.

1. **Acanthoctenus spinigerus.** (Tab. XXXIII. figg. 12, 12 *a*, ♂ ; 13, 13 *a–e*, ♀ .)

*Acanthoctenus spinigerus*, Keyserling, Verh. zool-bot. Ges. Wien, xxvi. p. 693, t. 2 (8). fig. 60 (♂)[1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 277[2].

Type ♂, deuterotype ♀, in Mus. Brit. Total length, ♂ 10, ♀ 14 millim.

*Hab.* MEXICO, Cordova (*coll. Keyserling*[1]), Mexico city, Minatitlan, Orizaba[2]; GUATEMALA (*Sarg*).

2. **Acanthoctenus spinipes.** (Tab. XXXIII. figg. 14, 14 *a*, ♂ ; 15, ♀ .)

*Acanthoctenus spinipes*, Keyserling, Verh. zool.-bot. Ges. Wien, xxvi. p. 695, t. 2 (8). fig. 61 (♀)[1].

Type ♀, deuterotype ♂, in Mus. Brit. Total length, ♀ 14·3, ♂ 10 millim.

*Hab.* GUATEMALA (*coll. Keyserling*); COSTA RICA (*Rogers*).—COLOMBIA, Bogota[1].

## Fam. PSECHRIDÆ.

The members of this family bear a very strong resemblance to those of the Agelenidæ, more especially to the genus *Tegenaria*; and in all probability they constitute a cribellate form of that group.

The chief characters will be found below under *Metafecenia*.

### METAFECENIA, gen. nov.

Type *M. albolineata*, sp. n. (♂). Mexico.

Tarsal claws three. Eyes in two rows, the anterior straight, the posterior procurved; eyes of anterior row about one-third of a diameter apart, centrals larger than the laterals; central posteriors larger than the laterals, half a diameter apart, a full diameter from the laterals. Clypeus one-half larger than an anterior central eye. Upper margin of the fang-groove with three unequal teeth; lower with four equal and adjacent equidistant teeth. Labium twice as long as broad, two-thirds the length of the maxillæ. Sternum oval, slightly longer than broad. Cribellum consisting of two narrow, elongate, transverse plates divided by a narrow septum (that of the young female consisting of a row of short curved bristles on the protarsus on the inner side).

Leg i. 45, iv. 42, ii. 35, iii. 30 millim. in length. Patellæ without spines; tibiæ i. and ii. with 2—2—2—2 spines beneath, the last pair apical, and 1—1 laterals on each side; protarsi i. and ii. with three pairs of irregularly situated spines beneath and some laterals.

The spiders from which the above characters are taken differ from both *Fecenia* and *Psechrus* in that the posterior row of eyes is procurved, the eyes of both rows being much closer together than in the former. In general appearance they are very like *Tegenaria*.

A single species occurs in our collection, but is represented only by adult males and a single immature female.

1. **Metafecenia albolineata,** sp. n. (Tab. XXXIII. figg. 16, 16 *a*, *b*, ♂; 17, 17 *a*, ♀.)

Type, ♂, in coll. Godman & Salvin. Total length 12 millim.

Legs 1, 4, 2, 3. Colour yellow-brown; carapace with a very narrow line of white hairs running down the centre, two short ones on each side of the ocular area, and a broad submarginal band of white hairs. Abdomen pale olive-green, paler beneath, with two broken parallel lines of white hairs running from the anterior margin almost to the spinners. Legs unicolorous yellow-brown; sternum paler.

Tibia of palpus with a tuft of long hairs beneath; one-half longer than the patellæ, slightly curved outwards, with a short, stout, black, blunt, apical spur, directed almost at right angles to the segment on the outer side. Tarsus nearly as long as the tibia; bulb with a stout curving spine, directed forwards, on the outer margin; the inner side of the bulb being produced into a stout lobe, its apex bifurcate, with another dark spine lying beneath its apex, this spine also lying within the concavity of a diaphanous white membrane.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

## Fam. DICTYNIDÆ.

Tarsal claws three. Cribellum present, usually (but not always) divided in the centre by a narrow septum; calamistrum consisting of a long double or single series of curved bristles extending from near the base either to the middle point or almost to the apex of the inner side of protarsus iv. Legs with or without spines. Eyes in two more or less parallel rows, subequal, varying in their relative position.

The spiders belonging to this family spin an irregular web over the surface of the walls of outhouses, on wooden palisading round gardens, or amongst the leaves of shrubs, the heads of rushes and grasses, under bark of trees, &c. The habit of *Dictyna parietalis* is precisely similar to that of *D. uncinata*, so common on wooden palisadings and amongst the foliage of trees and shrubs in England and on the Continent.

Two genera only have been recorded from Central America, *Dictyna* and *Temecula*; but I have also given the characters of *Thallumetus*, E. Simon, and *Ciniflo*, Blackwall, in the Table, for the sake of comparison. They may be distinguished as follows:—

### Genera.

*a*. Calamistrum consisting of a single row of curved bristles extending from about one-fifth from the base almost to the apex of protarsus iv. Legs (of females, at all events) devoid of spines.

1. Posterior row of eyes slightly recurved . . . . . Dictyna, Sund.
2. Posterior row of eyes slightly procurved.

*a'*. Central posterior eyes nearer to each other than to the laterals . . . . . Temecula, O. P.-Cambr.

*b'*. Central posterior eyes further from each other than from the laterals . . . . . [Thallumetus, E. Simon.]

*b*. Calamistrum consisting of a double row of curved bristles extending from about one-fifth from the base to scarcely beyond the middle of protarsus iv. Legs very spinose in both sexes . [Ciniflo, Blackw.]

Note.—I do not know *Thallumetus* and have assumed that in the characters drawn from the calamistrum and the armature of the legs it resembles *Dictyna*—"*cui valde affinis et subsimilis* est," according to Simon, Hist. Nat. Araign. éd. 2, i. p. 241.

## DICTYNA.

*Dictyna*, Sundevall, Consp. Arachn. p. 16 (1833).
*Mallos*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 308 (1902).

Type of *Dictyna*, *D. benigna*, Walck.=*arundinacea*, Linn., Europe; of *Mallos*, *M. niveus*, O. P.-Cambridge, Mexico.

The spiders belonging to this genus differ from *Temecula* in having the posterior row of eyes slightly recurved. *Dictyna* will probably prove to be well represented throughout the northern portion of the Central-American region. The type on which *Mallos* is based is an immature male; other examples, male and female adult, occur in the collection before me, and I can find no valid reason for separating the species from the present genus.

The species known to me may be distinguished as follows:—

*Males.*

*a*. Tibia of palpus with an apical spur; posterior portion of bulb convoluted, but not distinctly spiraloid . . . . . *parietalis*, O. P.-Cambr.
*b*. Tibia of palpus without any apical spur; posterior portion of bulb distinctly spiraloid . . . . . *nivea*, O. P.-Cambr.

*Females.*

*a*. External chitinous concavities of vulva elongate-piriform, posteriorly convergent . . . . . *grandis*, O. P.-Cambr.
*b*. External chitinous concavities of vulva circular.
  1. Inner margins of chitinous concavities almost in contact; posterior margin of vulva presenting a pair of oval-circular adjacent brown discs . . . . . *parietalis*.
  2. Inner margins of chitinous concavities widely separate, two and a half diameters apart; posterior margin of vulva presenting no discs, but a pair of inconspicuous black spots . . . . . *nivea*.

Note.—It is possible that *D. miniata*, Banks, is identical with *D. parietalis* (♂), for they both have a spur on the tibia of the palpus.

### 1. **Dictyna parietalis.** (Tab. XXXIII. figg. 18, ♂; 19, ♀.)

*Dictyna parietalis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 171, t. 21. figg. 5, 5 *a–e* (♂), 6, 6 *a*, *b* (♀) (1896) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ & ♀, 3·5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

### 2. **Dictyna nivea.** (Tab. XXXIII. figg. 20, 20 *a*, ♂; 21, ♀.)

*Mallos niveus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 308, t. 35. figg. 1, 1 *a–f* (♂) [1].

Type ♂ (immature), deuterotype ♀, in coll. Godman & Salvin. Total length, ♂ 3·5, ♀ 3 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith* [1]); Guatemala (*Sarg*).

### 3. **Dictyna grandis.** (Tab. XXXIII. figg. 22, 22 *a*, *b*, ♀.)

*Dictyna grandis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 172, t. 21. figg. 4, 4 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

*Hab.* Mexico, Chilpancingo[1] and Amula in Guerrero, Orizaba (*H. H. Smith*).

### 4. **Dictyna texana.**

*Dictyna texana*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 233[1].

*Hab.* Mexico, Tepic[1].

### 5. **Dictyna miniata.**

*Dictyna miniata*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 233, t. 14. fig. 25 (♂) (1898)[1].

Type, ♂, in coll. Calif. Acad. Sci. Total length 3·6 millim.

*Hab.* Mexico, Guaymas[1].

## TEMECULA.

*Temecula*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 170 (1896).

Type *T. mexicana*, O. P.-Cambridge (♂). Mexico.

### 1. **Temecula mexicana.** (Tab. XXXIII. figg. 23, ♂; 24, 24 *a–c*, ♀.)

*Temecula mexicana*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 170, t. 22. figg. 8, 8 *a–h* (♂)[1].

Type ♂, deuterotype ♀, in coll. Godman & Salvin. Total length, ♂ 5·75, ♀ 6 millim.

The two sexes are very similar in colour, but the male is darker than the female. Carapace brown. Abdomen unicolorous olive-brown. Femora, coxæ, and trochanters of legs red-brown or black, the rest yellow.

For the palpus of the male, see the Plate.

The vulva of the female is not at all characteristic, and it is doubtful whether the external chitinous parts are sufficiently detailed to be of any use for purposes of comparison.

*Hab.* Mexico, Teapa[1], Amula (*H. H. Smith*).

# Fam. DEINOPIDÆ.

Eyes eight; central posteriors immensely enlarged, advanced forwards, and taking up a vertical position. Legs very long and slender. Tarsal claws three. Cribellum elongate, transverse, narrow, not divided by a septum. Calamistrum occupying less than the basal half of protarsus iv.

## DEINOPIS.

*Deinopis*, MacLeay, Ann. & Mag. Nat. Hist. ii. p. 8 (Sept. 1838).

Type *D. lamia*, MacLeay (♀). Cuba.

The two species belonging to this genus which occur in our collection may be recognized as follows:—

*Males and Females.*

*a*. Central posterior eyes without any horn-like spurs above. Carapace parallel-sided, twice as long as broad. Femur i. with a fringe of hairs on the inner side basally. Abdomen very long, without tubercles . . . . . *longipes*, sp. n.

*b*. Central posterior eyes with a horn-like spur above. Carapace much broader just behind the cephalic area. Femur i. without any basal fringe of hair on the inner side. Abdomen (♂) with two tubercles on each side before the middle; (♀) with an additional pair of tubercles in front at the shoulders . . . . . *auritus*, sp. n.

1. **Deinopis longipes,** sp. n. (Tab. XXXIV. figg. 1, 1 *a–c*, ♂; 2, 2 *a*, *b*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 19, ♀ 25 millim.

*Hab.* MEXICO, Mexican Boundary, Rio Yxcam (*mus. Godman & Salvin*), Atoyac in Vera Cruz (*H. H. Smith*); GUATEMALA (*Sarg*); PANAMA, Bugaba (*Champion*).

The female of this spider appears, at first sight, to be identical with *D. spinipes*, Marx, from Florida. The figure of the vulva, however, given by Marx, is, curiously enough, identical in shape with that of the next species, *D. auritus*, which is obviously quite a distinct form.

2. **Deinopis auritus,** sp. n. (Tab. XXXIV. figg. 3, ♂; 4, 4 *a–e*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 14, ♀ 15 millim.

*Hab.* MEXICO, Jalisco (*Dugès*).

One would be inclined to treat this spider as generically distinct from the preceding species, but without being able at present to study the whole group thoroughly, I leave it under *Deinopis*.

## Fam. ULOBORIDÆ.

The spiders comprehended in this family probably have no near relations amongst existing forms; so that it is difficult to place them in any system of classification. They represent possibly the survivors of larger groups, the majority of whose members have long since died out.

The three genera represented in our collection may be distinguished as follows:—

GENERA.

*a*. Calamistrum occupying only the basal half of protarsus iv.

1. Central posterior eyes nearer to each other than to the lateral posteriors . . . . . ULOBORUS, Walck.
2. Central posterior eyes much further from each other than from the lateral posteriors . . . . . ARISTON, O. P.-Cambr.

*b*. Calamistrum occupying almost the whole length of protarsus iv. MIAGRAMMOPES, O. P.-Cambr.

## ULOBORUS.

*Uloborus*, Latreille, Gen. Crust. et Ins. i. p. 109 (1806).

Type *U. walckenaerius*, Latreille. Europe.

The species belonging to this genus differ from the types of *Miagrammopes* and *Ariston* in having the central posterior eyes nearer to each other than to the laterals. They live mostly a semi-parasitic life in the webs of large *Nephilæ* and other spiders, sometimes also in colonies. The commonest tropical form, *U. geniculatus*, is usually abundant in outbuildings, where the beautiful pink angular cocoons can be seen hanging in the webs.

The species which are known to me may be distinguished by the following characters. *U. diversus*, *U. albineus*, and *U. formosus* cannot be included in the Table, for I am unable to appreciate their differential characters:—

### *Males.*

*a*. Apical lobe of the bulb of the palpus produced into a short, sharp, curved spur. Carapace with a dentated pale band running down the centre from the posterior eyes . . . . . *signatus*, O. P.-Cambr.

*b*. Apical lobe of the bulb of the palpus not produced to form a spur. Carapace with a basal central and two large oval submarginal pale blotches . . . . . *geniculatus*, Oliv.

### *Females.*

A. Tibia i. normal, not fringed with hairs in the apical half.

I. Legs annulate, black, brown, and white.

*a*. Carapace brown, with a pale dentated band down the centre.

*a*¹. See figure of vulva . . . . . *signatus*.

*b*¹. See figure of vulva . . . . . *vicinus*, O. P.-Cambr.

*b*. Carapace brown, with a pale, basal, central spot and pale marginal bands.

1. See figure of vulva . . . . . *variegatus*, O. P.-Cambr.

2. See figure of vulva . . . . . *geniculatus*.

II. Legs pale, unicolorous, or with only the tibia and patella i. wholly or partially black.

*a*². Tibia i., and often patella also, entirely or partially black. Emargination of the posterior margin of the vulva much broader, semicircular . . . . . *cinereus*, O. P.-Cambr.

*b*². Tibia i. pale, unicolorous. Emargination of vulva much narrower, ⌒-shaped . . . . . *spernax*, O. P.-Cambr.

B. Tibia i. clothed with a fringe of hairs above and beneath anteriorly. *americanus*, Walck.

### 1. **Uloborus signatus.** (Tab. XXXIV. figg. 5, ♂; 6, 6 *a*, ♀.)

*Uloborus signatus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 264, t. 38. figg. 9, 9 *a–e* (♂), 10, 10 *a–c* (♀) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4, ♀ 5·5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]); Guatemala, Cubilguitz, Rio Santa Isabel, Tikal (*Sarg*).

### 2. **Uloborus vicinus.** (Tab. XXXIV. figg. 7, 7 *a*, ♀.)

*Uloborus vicinus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 266, t. 38. figg. 12, 12 *a–h* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

### 3. **Uloborus variegatus.** (Tab. XXXIV. figg. 8, 8 *a*, ♀.)

*Uloborus variegatus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 266, t. 38. figg. 11, 11 *a–g* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith* [1]).

### 4. **Uloborus geniculatus.** (Tab. XXXIV. figg. 9, 9 *a*, ♂; 10, 10 *a–e*, ♀.)

*Aranea geniculata*, Olivier, Encycl. Méthod. iv. p. 214 [1].
*Uloborus geniculatus*, McCook, Amer. Spiders, iii. p. 273, t. 27. figg. 1, 1 *a–d* (♀), 2, 2 *a* (♂) (1879) [2]; F. P. Cambr. Ann. & Mag. Nat. Hist. (7) vii. p. 332 [3].
*Uloborus zosis*, Walck. Ins. Apt. ii. p. 231, t. 20. figg. 1, 2 [4].
*Uloborus latreillii*, Thorell, Öfv. Vet.-Akad. Förh. xv. p. 197 [5].
*Orithyia williamsii*, Blackwall, Ann. & Mag. Nat. Hist. (3) ii. p. 331 [6].
*Uloborus domesticus*, Doleschall, Act. Soc. Sc. Ind. Neerl. v. p. 46 [7].
*Uloborus borbonicus*, Vinson, Aran. Réunion, p. 258, t. 1. fig. 3 [8].

*Hab.* North America, Gulf States [1 2 4 7]; Costa Rica (*mus. Godman & Salvin*).—South America, Amazons (*F. O. P. C.*), Pernambuco (*Williams* [6]); Antilles, Guadeloupe [1]; Bahama Is. [3].—Bourbon (Réunion) [8]; Malay Archipelago [7]; Australia (*L. Koch*).

This large species is truly cosmopolitan, being found throughout the tropics of both hemispheres, as well as in more temperate regions in America.

### 5. **Uloborus cinereus.** (Tab. XXXIV. fig. 11, ♀.)

*Uloborus cinereus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 265, t. 33. figg. 13, 13 *a–d* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 2·75 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

### 6. Uloborus spernax. (Tab. XXXIV. fig. 12, ♀.)

*Uloborus spernax*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 265, t. 33. figg. 12, 12 *a–d* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 3 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

The statement in Vol. I. p. 265, that the *calamistrum* extends only over the posterior half of the *metatarsus*, is evidently a slip. It does not differ in its position from that of others of the genus.

### 7. Uloborus americanus.

*Uloborus americanus*, Walck. Ins. Apt. ii. p. 229 [1]; F. P.-Cambr. Ann. & Mag. Nat. Hist. (7) vii. p. 332 [2].

*Uloborus plumipes*, Lucas, Expl. Algér., Anim. Art. i. p. 252, t. 15. fig. 8 [3]; McCook, Amer. Spid. iii. p. 274, t. 27. figg. 3, 3 *a–e* (♀), 4, 4 *a*, *b* (♂) [4]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 234 [5].

*Phillyra mammeata*, Hentz, Spid. U.S. p. 129, t. 14. fig. 16 [6].

*Phillyra riparia*, Hentz, op. cit. p. 130, t. 14. fig. 17 [7].

*Uloborus villosus*, Keyserling, Verh. zool.-bot. Ges. Wien, iii. p. 278, t. 11. fig. 6 [8].

*Hab.* North America, New England, Pennsylvania, Ohio, Alabama, Pacific coast [4].—Mexico, Tepic (*Banks* [5]); Guatemala (*Sarg*).—Bahama Is. [2].

### 8. Uloborus diversus.

*Uloborus diversus* (Marx), Banks, Proc. Calif. Acad. Sci. (3) i. p. 234, t. 15. fig. 17 (♀) [1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 5·5 millim.

*Hab.* Mexico, Guaymas [1].

### 9. Uloborus albineus.

*Uloborus albineus* (Marx), Banks, Proc. Calif. Acad. Sci. (3) i. p. 235, t. 15. fig. 18 (♀) [1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 4·2 millim.

*Hab.* Mexico, Hermosillo in Sonora [1].

### 10. Uloborus formosus.

*Uloborus formosus* (Marx), Banks, Proc. Calif. Acad. Sci. (3) i. p. 234, t. 14. fig. 31 (♀) [1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 5 millim.

*Hab.* Mexico, Orizaba [1].

The figures given by Banks of this and the two preceding species are not sufficient for purposes of identification. The vulva, moreover, is not figured.

## ARISTON.

*Ariston,* O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 216 (1896).

Type *A. albicans*, O. P.-Cambr. (♀). Mexico.

This spider differs from the type of *Uloborus* in that the central posterior eyes are much further apart than from the laterals, from *Miagrammopes* in that the central posteriors are larger than the lateral posteriors.

### 1. Ariston albicans.

*Ariston albicans,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 216, t. 27. figg. 9, 9 *a–d* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 2·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

## MIAGRAMMOPES.

*Miagrammopes,* O. P.-Cambridge, Journ. Linn. Soc., Zool. x. p. 400 (1869).

Type *M. thwaitesii*, O. P.-Cambridge. Ceylon.

The spiders belonging to this genus may be distinguished from those of *Uloborus* and *Ariston* by the fact that the calamistrum occupies nearly the entire length of protarsus iv. I had several opportunities of observing their habits in the forests of the Lower Amazons. They lie motionless, stretched straight out on a web, similar to that of *Hyptiotes.*

The species known to me may be distinguished as follows. Our specimens of *M. lineatus*, however, are too much shrivelled and too small to afford any useful characters :—

*Females.*

1. Colour black. Abdomen with four white spots about the middle and three dull white oblique blotches on each side. Carapace more than one-half longer than broad. Tibia iv. nearly twice as long as the protarsus and tarsus iv. taken together . . . . . *mexicanus,* O. P.-Cambr.
2. Colour olive-green. Abdomen with an irregular band of white spots on each side of the dorsal area. Carapace scarcely longer than broad. Tibia iv. scarcely longer than protarsus and tarsus iv. taken together . . . . . *alboguttatus,* sp. n.

### 1. Miagrammopes mexicanus. (Tab. XXXIV. figg. 13, 13 *a*, ♀.)

*Miagrammopes mexicanus,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 116, t. 15. figg. 7, 7 *a–d* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 10 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith* [1]).

### 2. **Miagrammopes lineatus.**

*Miagrammopes lineatus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 137, t. 17. figg. 12, 12 *a–c* (♀)[1].

Type, ♀ (immature), in coll. Godman & Salvin. Total length, of type 3·5, of an adult ♀ 7 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

### 3. **Miagrammopes alboguttatus,** sp. n. (Tab. XXXIV. figg. 14, 14 *a–c*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

Carapace olive-green, darker brown towards the margins. Legs olive-green, patella and apex of tibia iv. darker. Abdomen yellowish-olive-green, with a broad dusky central band, four pairs of small black dots, and a wavy white band on each side, resolving itself into two (or more) white spots on each side.

The small eyes in this species are entirely obsolete.

*Hab.* Guatemala, Gualebalhix, Rio Negro (*Sarg*).

## Fam. PHOLCIDÆ.

The members of this family may be at once recognized by their long slender legs and comparatively small bodies, and in their habits and the form of the web they resemble the various forms of Theridiidæ.

The genera represented in our collection may be separated by the following more easily observed characters:—

#### Genera.

A. Sternum produced behind into a blunt point . . . . . Artema, Walck.

B. Sternum not produced, but sparsely truncate behind.

*a*. Posterior row of eyes forming a recurved or straight line.

1. Eye-groups remote from the margin of the carapace.

*a*¹. Eyes situated more closely together, not separated laterally into two distinct groups . . . . . Modisimus, E. Simon.

*b*¹. Eyes more widely separate, the laterals forming two distinct groups.

*a*². Eyes eight . . . . . Physocyclus, E. Simon.

*b*². Eyes six.

*a*³. Eyes small and less projecting . . . . . Spermophora, Hentz.

*b*³. Eyes larger and more projecting . . . . . Metagonia, E. Simon.

2. Eye-groups situated on the margin of the carapace . . . . Micromerys, Bradley.

*b*. Posterior row of eyes forming a procurved line . . . . . Coryssocnemis, E. Simon.

Note.—The characters given in this Table are not satisfactory, so far as they apply to the whole family of Pholcidæ, but the adoption of others, probably more obscure, though perhaps more reliable, would involve a minute examination of the entire group.

## ARTEMA.

*Artema,* Walckenaer, Ins. Apt. i. p. 656 (1833).

Type *A. atlanta*, Walckenaer. Brazil.

This genus can be at once distinguished from all others of the family by the acuminated posterior portion of the sternum. Only one species occurs in Central America, and it is quite cosmopolitan, being found all over the Neotropical and Palæotropical Regions. This spider has been described under various names by different authors; but having minutely examined numerous examples of it in the British Museum Collection, from the Antilles, the Amazons, Mauritius, East Indies (Karachi and Poona), and the Malay Archipelago, I am convinced that they are identical. There are slight individual differences, it is true, in the form of the chitinous processes on the male palpus, and also in the exact position of the eyes, but these characters cannot, in my opinion, be regarded as of specific importance.

E. Simon considers *A. atlanta* and *A. mauriciana* to be different species; but examples from St. Vincent (Antilles), identified by him as *A. atlanta*, are identical with others received from Mauritius, and also with the large number taken by me at Santarem, on the Lower Amazons.

### 1. **Artema atlanta.** (Tab. XXXIV. figg. 15, 15 *a*, *b*, ♂; 16, 16 *a*, ♀.)

*Artema atlanta,* Walck. Ins. Apt. i. p. 656 [1]; Tacz. Horæ Soc. Ent. Ross. x. p. 103 (1873) [2].
*Artema atlantica,* Banks, Proc. Calif. Ac. Sci. (3) i. p. 212 [3].
*Artema mauriciana,* Walck. Ins. Apt. i. p. 657, t. 15. fig. 1 [4].
*Pholcus borbonicus,* Vinson, Aran. Réunion, p. 132, t. 3. fig. 4 (♀) [5].
*Artema convexa,* Blackwall, Ann. & Mag. Nat. Hist. (3) ii. p. 332 [6].
*Pholcus sisyphoides,* Doleschall, Nat. Tijdschr. Ned. Ind. xiii. p. 408 (1857) [7].
*Pholcus doriæ,* Thorell, Ann. Mus. Civ. Genova, xvii. p. 180 (1881) [8].
*Artema atalanta,* E. Simon, P. Z. S. 1894, p. 519 [9].

*Hab.* North America, Lower California [3].—Mexico, Ciudad in Durango (*Forrer*). —South America, Cayenne [2], Brazil [1], Pernambuco [6], Lower Amazons (*F. O. P. C.*); Antilles, St. Vincent [9].—Persia [8]; Mauritius [4]; Réunion [5]; Malay Archipelago [7].

## MODISIMUS.

*Modisimus,* E. Simon, Hist. Nat. Araign. (2) i. p. 485 (1893).

Type *M. glaucus*, E. Simon. Antilles.

Mandibles not striate on the outer side in either sex. The lateral and central posterior eyes not distinctly separated into two groups as in the other genera of the Pholcidæ.

The species occurring in our collection may be recognized as follows:—

*Males.*

*a*. Small anterior central eyes present. Spinules in front of mandibles much less numerous. Femoral spur of palpus longer and

more curved; process of tarsal sheath straight, pointed, not geniculate . . . . . *inornatus*, O. P.-Cambr.

*b*. Small anterior central eyes absent. Spinules in front of mandibles much more numerous. Femoral spur of palpus shorter and almost straight; process of tarsal sheath strongly geniculate, bent suddenly downward, its point broken up into a membranous brush-like structure . . . . . *propinquus*, O. P.-Cambr.

*Females.*

*a*. Small anterior central eyes present. Vulval plates transverse rectangular, its posterior angles sharp * . . . . . *inornatus*.

*b*. Small anterior central eyes absent.

1. Vulval plate semicircular, posterior margin raised, leaving a transverse cavity . . . . . *maculatipes*, O. P.-Cambr.
2. Vulval plate transverse rectangular, with angles rounded, having anteriorly a pair of orifices . . . . . *putus*, O. P.-Cambr.

### 1. **Modisimus inornatus.** (Tab. XXXIV. figg. 17, 17 *a*, *b*, ♂; 18, ♀.)

*Modisimus inornatus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 149, t. 20. figg. 7, 7 *a–e* (♀), t. 32. figg. 4, 4 *a–e* (♂) [1].

*Modisimus propinquus*, O. P.-Cambr. loc. cit. pp. 223, 303, t. 27. fig. 8*f* (♀, nec ♂) [2].

Type ♀, androtype ♂, in coll. Godman & Salvin. Total length, ♀ 2·75, ♂ 2·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1 2]).

### 2. **Modisimus propinquus.** (Tab. XXXIV. figg. 19, 19 *a*, *b*, ♂.)

*Modisimus propinquus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 223, t. 27. figg. 8, 8 *a–e* (♂, nec ♀) [2].

Type, ♂, in coll. Godman & Salvin. Total length 2·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

The female ascribed to this species in Vol. I. (p. 223) is identical with *M. inornatus*, O. P.-Cambr. (♀).

### 3. **Modisimus maculatipes.** (Tab. XXXIV. fig. 20, ♀.)

*Modisimus maculatipes*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 148, t. 20. figg. 5, 5 *a–e* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 2 millim.

*Hab.* Mexico, Teapa (*H. H. Smith* [1]).

* The figure of the vulva in Vol. I. t. 20. fig. 7 *e*, showing a convex process, is incorrect. The convexity is simply due to an accidental extrusion of membrane from within.

4. **Modisimus putus.** (Tab. XXXIV. fig. 21, ♀.)

*Modisimus putus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 148, t. 20. figg. 6, 6 *a–e* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 2·25 millim.

*Hab.* Mexico, Teapa (*H. H. Smith* [1]).

## PHYSOCYCLUS.

*Physocyclus*, E. Simon, Hist. Nat. Araign. 2, i. p. 470 (1893).

*Decetia*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 234 (1898).

Type of *Physocyclus*, *P. globosus*, Taczanowski (=*P. gibbosus*, Keyserling), Cayenne; that of *Decetia*, *D. incisa*, O. P.-Cambridge, Mexico.

Eyes eight. Mandibles striate in both sexes. The lateral and central posterior eyes separated into two distinct groups.

The species occurring in our collection may be recognized as follows:—

*Males.*

*a*. Size smaller. Tooth on mandibles rather shorter, seen in profile. Cusp-like granulations on the front of the mandibles much less numerous, 10–12 on each. Bulb of palpus much smaller, globular-reniform, its process broader, apically truncate, corrugated along the inner margin, with a short spur near the apex, but without a black concave chitinous lobe near its base in front . . . . . *globosus*, Tacz.

*b*. Size larger. Tooth on mandibles longer. Cusp-like granulations on the front of the mandibles much more numerous, 30–40 on each. Bulb of palpus much larger, inflated-globular, its process narrower, apically tapering to a blunt point, without a spur near its apex, but with a conspicuous, black, concave, chitinous lobe near its base in front . . . . . *dugesi*, E. Simon.

*Females.*

*a*. Carapace deeply grooved in the middle and with a longer or shorter conical cusp posteriorly, its point slightly inclined forward, opposed by an oval chitinous plate on the abdomen . . . . . *globosus*.

*b*. Carapace grooved in the middle, but evenly rounded behind, without cusp or plate on the abdomen.

1. Size much larger. Vulval processes very conspicuous, the anterior one directed backward, bluntly pointed in profile, bifid to the base from beneath . . . . . *dugesi*.

2. Size much smaller. Vulval area without processes, with simply a transverse chitinous rim having a small cavity at each end . . . *rotundus*, O. P.-Cambr.

1. **Physocyclus globosus.** (Tab. XXXIV. figg. 22, 22 *a*, *b*, ♂; 23, ♀.)

*Pholcus globosus*, Tacz. Hor. Soc. Ent. Ross. x. p. 105 (1873)[1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 213[2].

*Physocyclus globosus*, E. Simon, P. Z. S. 1894, p. 519[3].

*Pholcus gibbosus*, Keyserling, Verh. zool.-bot. Ges. Wien, xxvii. p. 208, t. 7. figg. 2, 2 *a* (♀) (1877) [3].
*Decetia incisa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 234, t. 29. figg. 1, 1 *a–c* (♀) [4].

Type, ♀, of *P. globosus* in Mus. Warsaw; of *P. gibbosus* in Mus. Brit.; of *D. incisa* in coll. Godman & Salvin. Total length, ♀, 4·5 millim.

*Hab.* North America, Lower California [2 4]. — Mexico, Teapa (*H. H. Smith* [4]). — Colombia, Bogota [3]; Guiana, Cayenne [1].

The female of this species bears on the anterior part of the abdomen a small, oval, roughened, chitinous plate, which is adapted to work against the conical cusp on the carapace, evidently constituting a stridulating-organ. The anterior process of the vulva is directed forward, but sharply recurved, pointed in profile, bifid from beneath. The mandibles are striated on the outer side in both sexes.

### 2. **Physocyclus dugesi.** (Tab. XXXV. figg. 1, 1 *a–d*, ♂; 2, 2 *a*, *b*, ♀.)

*Physocyclus dugesi*, E. Simon, Ann. Soc. Ent. Fr. 1893, p. 320 [1].

Type ♂, gynetype ♀, in coll. E. Simon. Total length, ♂ 5, ♀ 6·5 millim.

*Hab.* Mexico, Guanajuato (*Dugès* [1]), Amula (*H. H. Smith*); Guatemala (*Sarg*); Costa Rica (*Sarg*).

The anterior process of the vulva is directed backward, straight, and bluntly pointed, deeply bifid to the base, when seen from beneath. The mandibles are striated on the outer side in both sexes.

### 3. **Physocyclus rotundus.** (Tab. XXXV. figg. 3, 3 *a*, *b*, ♀.)

*Physocyclus rotundus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 263, t. 39. figg. 3, 3 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* Guatemala, Coban (*Sarg* [1]).

The vulval area is very inconspicuous, limited by three parallel chitinous lines, the anterior one shorter and slightly procurved, the posterior longer and recurved, the central one sinuous, with a small oval cavity at each end. The absence of any stridulating-bars on the mandible will probably furnish a good generic character. Unfortunately, however, there are no males of this species in our collection.

### 4. **Physocyclus mexicanus.**

*Physocyclus mexicanus*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 213, t. 13. fig. 40 (♀) [1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 4 millim.

*Hab.* Mexico, Tepic [1].

This species, which is allied to *P. dugesi*, can be recognized by the very long anterior

vulval processes, but Banks does not say how they appear from beneath—a very important point.

## SPERMOPHORA.

*Spermophora*, Hentz, Amer. Journ. Sci. xli. p. 117 (1841).

Type *S. meridionalis*, Hentz. Alabama.

Eyes six, in two groups, separated by a diameter of an anterior lateral eye; the anterior centrals being obsolete.

A single species only of this genus occurs in our collection.

### 1. **Spermophora placens.** (Tab. XXXV. figg. 4, 4 *a*, ♀.)

*Spermophora placens*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 222, t. 27. figg. 10, 10 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 2 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*[1])

## METAGONIA.

*Metagonia*, E. Simon, Hist. Nat. Araign. éd. 2, i. p. 472 (1893).

Type *M. bifida*, E. Simon. Brazil.

Eyes six, as in *Spermophora*, but larger and more projecting.

A single species only of this genus is represented in our collection.

### 1. **Metagonia caudata.** (Tab. XXXV. figg. 5, 5 *a*, ♂.)

*Metagonia caudata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 150, t. 21. figg. 8, 8 *a–d* (♀), t. 31. figg. 7, 7 *a–e* (♂)[1].

Type ♀, androtype ♂, in coll. Godman & Salvin. Total length, ♀, 4 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*[1]).

## MICROMERYS.

*Micromerys*, Bradley, Proc. Linn. Soc. New South Wales, ii. p. 118 (1877).

Type *M. gracilis*, Bradley. Australia.

Eyes six, the two groups situated on the margin of the carapace.

### 1. **Micromerys delicatus.** (Tab. XXXV. figg. 6, 6 *a*, ♂.)

*Micromerys delicatus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 149, t. 21. figg. 7, 7 *a–c* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 2·75 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*[1]).

## CORYSSOCNEMIS.

*Coryssocnemis*, E. Simon, Hist. Nat. Araign. éd. 2, i. p. 483 (1893).

Type *C. callaica*, E. Simon. South America.

Eyes eight, anterior row straight. Mandibles not striate in either sex.

The species known to me may be distinguished as follows:—

*Females.*

*a*. Anterior process of the vulva simple, conical . . . . . *simoni*, O. P.-Cambr.
*b*. Anterior process of the vulva distinctly furculate . . . . . *furcula*, sp. n.

1. **Coryssocnemis simoni.** (Tab. XXXV. figg. 7, 7 *a*, *b*, ♀.)

*Coryssocnemis simoni*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 237, t. 31. figg. 9, 9 *a–f* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* Mexico, Omilteme in Guerrero 8000 feet (*H. H. Smith*[1]).

2. **Coryssocnemis furcula,** sp. n. (Tab. XXXV. figg. 8, 8 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

*Hab.* Guatemala, Tecpam in the Los Altos region 7000 feet (*Stoll*).

Very similar to *C. simoni*, but instantly recognizable by the furculate anterior vulval process.

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The following species is unknown to me:—

*Pholcus cordatus*, Bilimek, Verh. zool.-bot. Ges. Wien, xvii. p. 907 (1867)[1].—*Hab.* Mexico, cave of Cacahuamilpa[1].

## Fam. THERIDIIDÆ.

The spiders belonging to this family may readily be distinguished from those of the Argyopidæ, which more nearly resemble them in general habit and appearance (*Linyphia*, &c.), by the possession of a distinct comb on the tarsi of the fourth pair of legs. This organ, which is used for flinging silk, often in a quite liquid state, over the entangled prey, was long ago noticed by Lucas and O. Pickard-Cambridge, and has been fully described by myself in the 'Journal of Microscopy and Natural Science' for 1890. It has since been recognized by E. Simon as a distinctive family character (Hist. Nat. Araign. éd. 2, i. p. 491).

In their habits the Theridiidæ do not very greatly differ, except that a certain number of them (e. g. *Episinus*) make no web at all, or spin a very few cross-lines

only. The web of the true *Theridion* consists of a tangled mass of crossing threads, in the middle of which the spider hangs head downwards, while the egg-cocoon—sometimes one, sometimes three or more, circular or pear-shaped—is concealed within a neighbouring leaf, or hangs in the toil itself, as in *Steatoda tepidariorum*, *Latrodectus*, &c. One very distinct group of these spiders may be recognized by the possession in the male sex of a stridulating-organ, formed by the toothed and chitinous margin of the cavity on the anterior portion of the abdomen rubbing against the convex granulate surface of the posterior portion of the carapace (*Asagena*, *Teutana*, *Lithyphantes*, *Coleosoma*, &c.). Another group (*Latrodectus*) is remarkable for the evil reputation, which its members have long enjoyed, of being able to inflict a most dangerously poisonous bite. Although there is abundant testimony of serious consequences from the bite or sting of some insect or spider living in the places where *Latrodectus* is found, there is still great need of direct evidence as to the actual culprit. The spiders themselves are very handsome, with their jet-black bodies slashed and spotted with vermilion.

One of the more interesting members of the family (*Anelosimus socialis*) passes its life, not in the semi-solitary condition which prevails amongst the majority, but in a community consisting of many hundreds. The communal snare in this case is often immense, covering bushes and shrubs to the height of ten or twelve feet and often a yard or more in width. Perhaps the most beautiful of all the Theridiidæ are, however, those belonging to the genus *Argyrodes*; they are mostly very small, but their bodies are spangled with brilliant silver, so that when hanging in the webs of the larger Argyopidæ (*Nephila* &c.) they shine like drops of water in the sunlight, a resemblance which doubtless serves them as a protection against their enemies. Allied to these are the curious forms belonging to the genus *Ariamnes*, which have the abdomen prolonged into a worm-like appendage; this, as I have myself observed in Brazil, is wriggled to and fro, looking like a small caterpillar. But of what service to the spider this accomplishment may be is not easy to guess; for on the one hand it seems likely to attract the attention of grub-eating wasps and ants, though on the other it may attract, within striking distance, gnats and small flies who become curious to ascertain what the wriggling phenomenon may portend.

The various genera into which the members of the family are divided may be recognized by the following characters, though it cannot be declared that in all cases they are satisfactory:—

GENERA.

i. Males with a stridulating-cavity on the abdomen, its chitinous margin toothed; (colulus present).

A. Chitinous margin of stridulating-cavity continuous, not bifid.

* Sternum prolonged between coxæ iv., forming a setigerous chitinous piece.

1. Lateral eyes in contact.
   *a*. Sternum produced into a narrow point between coxæ iv. — Teutana, E. Simon.
   *b*. Sternum produced into a broad piece between coxæ iv. — Wamba, O. P.-Cambr.
2. Lateral eyes narrowly separated.
   $a^1$. Central anterior eyes much larger than the laterals . — Stearodea, F. Cambr.
   $b^1$. Eyes of anterior row subequal . . . . . — Lithyphantes, Thorell.

** Sternum not prolonged between coxæ iv. . . . . — Asagena, Sund.

B. Chitinous margin of stridulating-cavity deeply bifid in the middle, forming a long dentigerous lamina on each side . . — Coleosoma, O. P.-Cambr.

.. Males without a stridulating-cavity on the abdomen.

AA. Carapace without transverse groove, but with the usual central depression or longitudinal groove.

† Colulus very conspicuous . . . . . — Latrodectus, Walck.

†† Colulus absent or very minute.

A. Colulus entirely absent.

$a^2$. Anterior row of eyes straight or recurved. Tibia of male palpus normal.

$a^3$. Eyes of posterior row equidistant. Eye-groups closer together . . . . . — Steatoda, Sund.

$b^3$. Central posteriors much nearer together than to the laterals. Eye-groups more widely separate . . . — Theridion, Walck.

$b^2$. Anterior row of eyes procurved. Tibia of male palpus enormously developed . . . . . — Theridula, Emert.

B. Colulus present, but often almost obsolete, represented only by two bristles set on a minute tubercle.

*aa*. Sternum not broadly produced between coxæ iv.

1 *a*. Posterior row of eyes straight or slightly recurved.

*a**. Lateral eyes contiguous; clypeus higher than the central ocular quadrangle.

$a^4$. Leg i. longer than leg iv.

$a^5$. Abdomen not conically produced behind. Bulb of male palpus involuted . . . . . — Anelosimus, E. Simon.

$b^5$. Abdomen conically produced behind. Bulb of male palpus not involuted . . . . . — Thwaitesia, O. P.-Cambr.

$b^4$. Leg iv. longer than leg i. . . . . — Euryopis, Menge.

*b**. Lateral eyes slightly separate; clypeus narrower than the central ocular quadrangle . . . . . — Episinus, Walck.

1 *b*. Posterior row of eyes distinctly procurved . . . — Spintharus, Hentz.

*bb*. Sternum broadly produced between coxæ iv.

$a^6$. Eyes of anterior row subequal.

i. Tibiæ and protarsi i. and ii. with rows of long spines on the inner side . . . . . — Dipœna, Thorell.

ii. Tibiæ and protarsi i. and ii. without rows of long spines.

*$^1$. Central eyes of the posterior row the largest . — Stemmops, O. P.-Cambr.

| | |
|---|---|
| *[2]. Eyes of posterior row subequal. | |
| $a^7$. Eyes much more closely grouped. Central quadrangle narrower in front; anterior centrals one diameter apart. Clypeus twice the height of the central ocular quadrangle . . | Liger, O. P.-Cambr. |
| $b^7$. Eyes much more widely separate. Central quadrangle broader in front; anterior centrals two and a half diameters apart. Clypeus not higher than the central ocular quadrangle. | Egilona, O. P.-Cambr. |
| $b^6$. Central anterior eyes much larger than the laterals . . . . . | Achæa, O. P.-Cambr. |
| BB. Carapace with a transverse groove in the middle. | |
| $a^8$. Abdomen shorter, not vermiform. Colulus distinct. | |
| **[1]. Central posterior eyes closer to each other than to the laterals . . . . . | Argyrodes, E. Simon. |
| **[2]. Central posterior eyes further from each other than from the laterals . . . . . | Rhomphæa, L. Koch. |
| $b^8$. Abdomen much longer, vermiform. Colulus almost obsolete . . . . . | Ariamnes, Thorell. |

Note.—(1) The generic affinities of so minute a form as *Egilona munda* are very difficult to determine from a single specimen, not very well preserved; (2) from the material before me I am unable to confirm the statement in Hist. Nat. Araign. éd. 2, i. p. 502, as to the relative length of the tibia of leg i. In the last three genera enumerated, *Argyrodes*, *Rhomphœa*, and *Ariamnes*, the relative proportions are practically the same.

## TEUTANA.

*Teutana*, E. Simon, Arachn. Fr. v. p. 161 (1881).

Type *T. triangulosa* (Walck.). Europe, Africa, and America.

The spiders referred to this genus are very difficult to separate by any reliable characters from those included under *Lithyphantes*, though, so far as one can judge from the material at hand, the contiguity of the lateral eyes may prove constant. The sternum is prolonged between the coxæ of the fourth pair of legs, and the chitinous margin of the stridulating-cavity on the abdomen of the male is toothed as in all the other allied genera. A single species only is represented in the collection before me, and this one occurs also in Europe.

### 1. **Teutana grossa.** (Tab. XXXV. figg. 9, 9 *a*, ♂; 10, 10 *a*, ♀.)

*Theridium grossum*, C. L. Koch, Die Arachn. iv. p. 112, t. 140. fig. 321 (♀)[1].

*Teutana grossa*, E. Simon, Arachn. Fr. v. p. 164[2]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 238[3]; Kulczynski, Aran. Hungar. ii. p. 36, t. 1. fig. 41 (♂)[4].

*Teutana zonata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 306, t. 35. figg. 7, 7 *a*, *b* (♂), 8, 8 *a–c* (♀) (nec Keyserl.)[5].

*Theridium nitidum*, Holmberg, An. Agric. Republ. Argent. no. 22, p. 13 (fide Keyserling)[6].

*Teutana nitida*, Keyserl. Spinn. Amer., Therid. i. p. 124, t. 6. figg. 79, 79 *a*, *b*, *c* (♂), 79 *d* (♀) [7].
*Theridium domesticum*, Holmberg, loc. cit. p. 13 (fide Keyserling) [8].
*Steatoda pusulosa*, Keyserl. Verh. zool.-bot. Ges. Wien, p. 579, t. 14. figg. 7 (♂), 8 (♀) (1877) [9].

*Hab.* MEXICO, San Miguel de Horcasitas (*fide Marx*) [3]; GUATEMALA (*Sarg* [5]).—ARGENTINA [6 8]; URUGUAY [9].—EUROPE [1 2 4]; AFRICA [2 4].

The type of *T. pusulosa* (Keys.) is now before me, a species considered by Keyserling to be identical with *T. nitida* (Holmberg). It agrees perfectly with the Guatemalan examples (♂ & ♀) referred to *T. zonata*, Keys., in Vol. I. of the Arachnida Araneidea of this work, and also with European specimens of the true *T. grossa* (C. L. Koch). The small *unca* near the apex of the palpal bulb of the male is unmistakable, the species differing in this respect from *T. zonata*, according to Keyserling's figure of the latter, while the form of the vulva, though differing in individuals, is quite similar in all the examples I have compared of the above forms.

## WAMBA.

*Wamba*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 191 (1896).

Type *W. congener*, O. P.-Cambr. Guatemala.

The species on which this genus is founded is exceedingly small, but its characters are evident. The stridulating-cavity on the abdomen is margined by a chitinous ridge, toothed as in other allied genera. The lateral eyes are in contact, and the sternum, which is produced between coxæ iv., is very broad at that point, at least half the diameter of the coxa.

### 1. **Wamba congener.** (Tab. XXXV. figg. 11, 11 *a*, ♂.)

*Wamba congener*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 191, t. 24. figg. 1, 1 *a–f* (♂) [1].

Type, ♂, in coll. Godman & Salvin. Total length 1·5 millim.

*Hab.* GUATEMALA, Chicoyoito (*Sarg* [1]).

## LITHYPHANTES.

*Lithyphantes*, Thorell, Europ. Spid. p. 94 (1869).

Type *L. corollatus* (Linn.). Europe.

The slight separation of the lateral eyes distinguishes the type-species of this genus from that of *Teutana*, while the prolongation of the sternum between coxæ iv. separates it from that of *Asagena*. The chitinous margin of the stridulating-cavity in the male is toothed. Six species have been recorded from Central America.

The two females which are known to me may be recognized as follows:—

*a*. Size much larger. Vulva with a pair of dark cavities in the middle. *lugubris*, sp. n.
*b*. Size much smaller. Vulva without dark cavities, but with a triangular striated conical process . . . . . *nigrofemoratus*, Keyserl.

### 1. **Lithyphantes quæsitus.** (Tab. XXXV. figg. 13, 13 *a*, ♂.)

*Lithyphantes quæsitus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 180, t. 22. figg. 6, 6 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

### 2. **Lithyphantes clarus.**

*Lithyphantes clarus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 252, t. 38. figg. 6, 6 *a–d* (♀)[1].

Type (immature), ♀, in coll. Godman & Salvin. Total length 5·75 millim.

*Hab.* Mexico, Patzcuaro (*H. H. Smith*[1]).

### 3. **Lithyphantes nigrofemoratus.** (Tab. XXXV. fig. 14, ♀.)

*Lithyphantes nigrofemoratus*, Keyserl. Spinn. Amer., Therid. i. p. 139, t. 6. figg. 87, 87 *a* (♀)[1].

Type, ♀, in coll. Univ. Warsaw. Total length 4·5 millim.

*Hab.* Guatemala (*Sarg*).—Peru, Monte Rico[1].

Although I have not seen the type, I suspect that the Guatemalan example of which the vulva is figured on our Plate is identical with this species.

### 4. **Lithyphantes pulcher.**

*Lithyphantes pulcher*, Keyserl. Spinn. Amer., Therid. i. p. 137, t. 6. figg. 85, 85 *a* (♀)[1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 238, t. 14. figg. 7, 8 (♀)[2].

Type, ♀, in coll. E. Simon. Total length 6 millim.

*Hab.* North America[1].—Mexico, Tepic[2].

### 5. **Lithyphantes autumnalis.**

*Lithyphantes autumnalis*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 240, t. 14. fig. 6 (♀)[1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 3·9 millim.

*Hab.* Mexico, Tepic[1].

### 6. **Lithyphantes lugubris,** sp. n. (Tab. XXXV. figg. 15, 15 *a–c*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* Mexico, Amula, Omilteme (*H. H. Smith*); Panama, Bugaba (*Champion*).

The abdomen, carapace, and sternum of this species are black, the former with an anterior pale cincture and often with other pale spots dorsally; the legs are black and dull orange—sometimes one colour, sometimes the other prevailing.

## STEARODEA.

*Stearodea*, F. P.-Cambridge, Ann. & Mag. Nat. Hist. (7) ix. p. 13 (1902).

Type *S. bipunctata* (Linn.). Europe.

The chief difference which separates this genus from others of the group lies in the great size of the anterior central eyes. The margin of the chitinous ridge on the anterior portion of the abdomen in the male is toothed as in the other allied genera. One species only occurs in the collection before me, which may readily be recognized by the form of the vulva.

### 1. **Stearodea americana,** sp. n. (Tab. XXXV. figg. 12, 12 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

This species resembles our European *S. bipunctata* in general appearance, but the form of the vulva is quite different.

## ASAGENA.

*Asagena*, Sundevall, Consp. Arachn. p. 19 (1833).

Type *A. phalerata* (Panzer). Europe.

The type-species of this genus can readily be distinguished from that of *Lithyphantes* by the rugulosity of the sternum and the greater comparative height of the clypeus; but I very much doubt if these characters will prove to be constant. The same remark applies to the absence of any chitinous division between coxæ iv.; but for the present I keep the two genera separate.

The species known to me may be recognized by the following characters:—

*Males.*

*a.* Embolus of palpal bulb long, conspicuous, filiform, encircling the face of the bulb . . . . . *alticeps*, Keyserl.

*b.* Embolus of palpal bulb very short . . . . . *quadrimaculata*, O. P.-Cambr.

### 1. **Asagena alticeps.** (Tab. XXXV. figg. 16, 16 *a*, ♂.)

*Asagena alticeps*, Keyserl. Spinn. Amer., Therid. ii. p. 4, t. 11. figg. 136, 136 *a–e* (♂)[1].

*Lithyphantes lætus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 181, t. 22. figg. 12, 12 *a–f* (♂)[2].

Type, ♂, of *A. alticeps*, in Mus. Brit., total length 3·7 millim.; that of *L. lætus*, ♂, in coll. Godman & Salvin, total length 3·75 millim.

*Hab.* Costa Rica (*Sarg*[2]).—Colombia[1].

Having carefully compared the types of the two forms described, I can find no real difference in the shape of the processes of the palpal bulb.

### 2. **Asagena quadrimaculata.** (Tab. XXXV. figg. 17, 17 *a*, ♂.)

*Asagena quadrimaculata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 189, t. 23. figg. 12, 12 *a–e* (♂)[1]; E. Simon, P. Z. S. 1897, p. 864[2].

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* Guatemala, Antigua (*Sarg, ex Dr. Stoll* [1]).—Venezuela; Antilles, St. Vincent [2].

### 3. **Asagena mœsta.** (Tab. XXXV. fig. 18, ♀.)

*Asagena mœsta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 209, t. 25. figg. 4, 4 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

*Hab.* Guatemala (*Champion* [1]).

### 4. **Asagena zonata.**

*Teutana zonata*, Keyserl. Spinn. Amer., Therid. i. p. 127, t. 6. figg. 80, 80 *a*, *b* (♂)[1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 238[2].

[Nec *Teutana zonata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 306, t. 35. figg. 7, 7 *a*, *b* (♂), 8, 8 *a–c* (♀).]

Type, ♂, in coll. E. Simon. Total length 6·1 millim.

*Hab.* Mexico [1], Minatitlan [2].

I do not know this species, and suspect that it may belong to *Asagena*. According to Keyserling's figures, the abdomen is cinctured with white, and the bulb of the palpus has no small hook near the apex.

## LATRODECTUS.

*Latrodectus*, Walckenaer, Tabl. p. 81 (1805).

Type *L. tredecim-guttatus* (Rossi). Europe.

Tarsus iv. with a comb beneath. Colulus present and conspicuous. Males without stridulator on the abdomen.

One species only of this genus has been recorded from Central America, *L. mactans*. Another, however, *L. geometricus*, is common in Brazil, and I therefore give it a place in the Table and on the Plate (Tab. XXXV. figg. 23, ♂; 24, 24 *a*, ♀). They may be distinguished as follows:—

*Males and Females.*

*a*. Eyes of anterior row subequal. Body black, with red spots and splashes . . . . . *mactans*, Fabr.

*b*. Central anterior eyes distinctly larger than the laterals. Body entirely dusky black (var.) or grey with dusky spots and lines . [*geometricus*, C. L. Koch.]

### 1. **Latrodectus mactans.** (Tab. XXXV. figg. 19, 19 *a*, ♂; 20, 20 *a–i*, ♀.)

*Araneus mactans*, Fabr. Ent. Syst. ii. p. 210[1].

*Latrodectus mactans*, Walck. Ins. Apt. i. p. 648[2]; C. L. Koch, Die Arachn. viii. p. 115, t. 284.

fig. 682 (♀)[3]; Keyserl. Spinn. Amer., Ther. i. p. 145, t. 7. figg. 91, 91 *a–d* (♂)[4]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 237[5].

*Latrodectus formidabilis*, Walck. Ins. Apt. i. p. 647[6]; Nicolet, in Gay's Hist. Chile, Zool. iii. p. 460, t. 4. fig. 10 (♀)[7].

*Latrodectus variolus*, Walck. (Abbot's figs., MS.) Ins. Apt. i. p. 647[8].

*Latrodectus dotatus*, C. L. Koch, Die Arachn. viii. p. 115, t. 284. fig. 683 (♂)[9].

*Latrodectus variegatus*, Nicolet, in Gay's Hist. Chile, Zool. iii. p. 461, t. 4. fig. 9 (♀)[10].

*Latrodectus thoracicus*, Nicolet, loc. cit. p. 462[11].

*Tetragnatha zorilla*, Walck. Ins. Apt. ii. p. 221, t. 19. fig. 2 (♂)[12].

*Theridium verecundum*, Hentz, Journ. Bost. Soc. Nat. Hist. vi. p. 280[13]; Spid. U.S. (ed. Burgess) p. 153, t. 17. figg. 1 (♀), 2 (♂)[14].

*Theridium lineatum*, Hentz, loc. cit. p. 281[15]; Spid. U.S. (ed. Burgess) p. 154, t. 17. fig. 3 (♂ juv.)[16].

Total length, ♂ 5, ♀ 12 millim.

*Hab.* North America[1], California[4].—Mexico, Ojos de Agua, Chilpancingo, Amula, Omilteme, Venta de Zopilote (*H. H. Smith*), Xautipa (*Dugès*), San Miguel de Horcasitas[5], Tepic, Minatitlan, Orizaba[13]; Guatemala, Capetillo, Antigua (*Rodriguez*), Salamá (*Dr. Rivera Paz*), Guatemala city (*Stoll*); Costa Rica (*Rogers*); Panama, Bugaba (*Champion*).—South America, Chile[7 10 11], &c.

Note.—Whether *L. geographicus*, of which figures are given on our Plate (Tab. XXXV. figg. 21, ♂; 22, ♀), is a small variety of *L. mactans* or a distinct species is at present doubtful. It occurs in Brazil and in the Antilles, and may possibly be found to inhabit Central America.

## STEATODA.

*Steatoda*, Sundevall, Consp. Arachn. p. 16 (1833); F. P.-Cambridge, Ann. & Mag. Nat. Hist. (7) xi. p. 11 (1902).

*Chrysso*, O. P.-Cambridge, P. Z. S. 1882, p. 429.

Type of *Steatoda*, *S. lunata*, Sundevall (= *Theridion tepidariorum*, C. L. Koch), Europe; that of *Chrysso*, *C. albomaculata*, O. P.-Cambridge, Amazons.

There is, so far as I can find, no reliable structural difference between the type of this genus and that of *Theridion*; but the group of species which are gathered round the types of each of these genera can be recognized as quite distinct in general appearance, and possibly when the whole of the Theridiidæ have been exhaustively compared, they will fall into conveniently distinct groups, and many others will be made in addition.

*Males.*

A. Embolus of palpus much less conspicuous, not prolonged into a convoluted spine, encircling the bulb.

| | | |
|---|---|---|
| *a.*<br>*b.*<br>*c.*<br>*d.* | Separable by the form of the embolus and conductor of the palpal organs . . . . . | *tepidariorum*, C. L. Koch.<br>*tæniata*, Keyserl.<br>*rufipes*, Lucas.<br>*cavipalpus*, sp. n. |

B. Embolus of palpus much more conspicuous, prolonged into a convoluted spine, more or less encircling the inner side of the bulb.

i. Legs more or less annulated with black.

$a^1$. Embolus of palpus making a single circle . . . . . *transversa,* O. P.-Cambr.

$b^1$. Embolus of palpus making a double circle . . . . . *spiralis,* Emert.

ii. Legs plain yellow, not annulate.

$a^2$. Embolus of palpus looped back upon itself; the conductor being very slender and lying closely attached to the embolus as far as its apex . . . . . *longistylum,* sp. n.

$b^2$. Embolus of palpus not looped back upon itself; the conductor being broader, not accompanying the embolus in close attachment to it.

$a^3$. Hairs on the legs much more conspicuous . . . . . *hispida,* O. P.-Cambr.

$b^3$. Hairs on the legs much less conspicuous.

$a^4$. Embolus much longer, stouter basally; the base of the bulb concavo-truncate; conductor very broad, concave, and conspicuous . . . . . *voluta,* sp. n.

$b^4$. Embolus shorter, more slender basally; the base of the bulb more convex; conductor much narrower and less conspicuous.

$a^5$. Embolus longer, making a much wider loop round the base of the bulb; the apex of the conductor more developed. *albomaculata,* O.-P. Cambr.

$b^5$. Embolus shorter, making a much narrower loop round the base of the bulb; the apex of the conductor less developed . . . . . *rubicunda,* sp. n.

*Females.*

A. Abdomen much higher dorsally.

*a*. Abdomen without a central dorsal conical cusp.

$a^1$. Vulva without a scape.

1. Vulva consisting of a transverse oval concavity not divided into two orifices by a central septum . . . . . *tepidariorum.*

2. Vulva divided in the middle into two orifices.

$a^2$. Size larger; vulva with the pair of orifices, about one diameter apart, distinctly separated in the middle, having also a pair of dark discs anteriorly . . . . . *tæniata.*

$b^2$. Size smaller; vulva with the pair of orifices not distinctly separated in the middle, each having a rounded boss in the centre . . . . . *florens,* O. P.-Cambr.

$b^1$. Vulva with a conical sharply-pointed scape, bulbous at its base and of variable length . . . . . *forda,* Keyserl.

*b*. Abdomen with a central dorsal conical cusp.

$a^3$. Vulva having a scape.

$a^4$. Scape of vulva slender and conical, without a broad basal portion . . . . . *mixta,* O. P.-Cambr.

$b^4$. Scape of vulva broad and transverse, emarginate in the middle, with each angle prominent . . . . . *oblivia*, O. P.-Cambr.

$b^3$. Vulva without any scape, but with a pair of orifices one full diameter apart . . . . . *pura*, O. P.-Cambr.

B. Abdomen much lower dorsally, convex, but not so gibbous above.

i. Abdomen with a pale central dentated band on the posterior dorsal half, with lateral ramifications anteriorly; or with the central and lateral bands more or less broken up into separate spots.

$a$*. Tibiæ of all four pairs of legs normally slender.

$a^5$. Legs with at least the apex of the tibiæ and the protarsi more or less annulate with brown or black.

$a^6$. Pale central posterior dentated band constant (so far as one can judge from the material).

1 *a*. Vulva consisting of a more or less circular cavity.

1*. Vulval cavity quite circular . . . . . *transversa*.

2*. Vulval cavity with a posterior emargination . . . *compressa*, nom. n.

1 *b*. Vulva consisting of a transverse oblong cavity, much broader than long . . . . . *aspersa*, sp. n.

$b^6$. Pale central posterior band broken up into separate spots.

$a^7$. Vulva forming a low conical projection with an apical sharp point . . . . . *rostrata*, O. P.-Cambr.

$b^7$. Vulva forming a low convex projection with a small apical cavity . . . . . *morula*, O. P.-Cambr.

$b^5$. Legs not annulate . . . . . *rufipes*.

$b$*. Tibiæ of all four pairs incrassate . . . . . *munifex*, O. P.-Cambr.

ii. Abdomen either entirely pale yellow; or yellow, with black and white spots, or black spots only.

$a^8$. Abdomen entirely pale yellow . . . . . *viva*, O. P.-Cambr.

$b^8$. Abdomen yellow, with black or white spots, or both.

$a^9$. Abdomen yellow, with black spots or blotches and brilliant white cretaceous spots.

$a^{10}$. Abdomen produced behind into a long conical point. Legs entirely yellow . . . . . *albomaculata*.

$b^{10}$. Abdomen not or very slightly produced behind. Femora of legs slashed longitudinally on each side with dark brown or black . . . . . *voluta*.

$b^9$. Abdomen pale yellow, with six minute black spots on the dorsal area . . . . . *sexmaculata*, Keyserl.

Note.—The female of *Steatoda spiralis*, Emerton, would fall into this list close to *S. transversa*. The type of *S. albula* (O. P.-Cambr.) cannot be found, so that I am unable to include the species in the Table. *S. confraterna* and *S. elevata* (Banks) are unknown to me. *S. elegans* (Tacz.) comes very close to *S. albomaculata* and *S. voluta*.

1. **Steatoda tepidariorum.** (Tab. XXXVI. figgs. 1, 1 *a–c*, ♂; 2, 2 *a–d*, ♀.)

*Theridium tepidariorum*, C. L. Koch, Die Arachn. viii. p. 75, figg. 647 (♀), 648 (♀)[1]; Emerton, Trans. Conn. Acad. Sci. vi. p. 13, t. 2. figg. 1 *a* (♂), 1 *b* (♀)[2]; E. Simon, P. Z. S. 1897, p. 861[3]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 236[4]; O. P.-Cambr. Journ. Linn. Soc., Zool. x. p. 382[5].

*Theridium tepidatorium*, Keyserl. Spinn. Amer., Therid. i. p. 9, t. 1. figg. 1, 1 *a*, *b*, *c* (♀), 1 *d* (♂)[6].

*Theridium vulgare*, Hentz, Journ. Bost. Soc. Nat. Hist. vi. p. 271, t. 9. fig. 1 (♀)[7]; Spid. U.S. p. 142, t. 16. fig. 1 (♀), t. 21. fig. 12 (♂)[8].

*Hab.* North America[2 6 7], California[4].—Mexico, Hermosillo in Sonora; Guatemala (*Sarg*).—Antilles, St. Vincent[3].—Europe[1]; Ceylon[7].

Emerton gives a figure of the palpus of the species which he identifies as *Theridium vulgare*, Hentz; it is identical with that of *T. tepidariorum*, C. L. Koch.

2. **Steatoda tæniata.** (Tab. XXXVI. figg. 3, ♂; 4, 4 *a*, ♀.)

*Theridium tæniatum*, Keyserl. Spinn. Amer., Therid. i. p. 12, t. 1. figg. 2, 2 *a*, *b* (♀), 2 *c* (♂)[1].

Type ♂, gynetype ♀, in coll. L. Becker, Brussels. Total length, ♂ 2·3, ♀ 4·1 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*); Panama, Bugaba (*Champion*).—Venezuela[1].

This beautiful little species belongs to the same group as does the European *S. formosa*.

3. **Steatoda florens.** (Tab. XXXVI. fig. 5, ♀.)

*Theridion florens*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 205, t. 24. figg. 12, 12 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 2·5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

4. **Steatoda cavipalpus,** sp. n. (Tab. XXXVI. figg. 6, 6 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 2 millim.

*Hab.* Guatemala (*Sarg*).

This is a very small species with pale yellow-white legs, femora i. being darker; the carapace is pale orange, with a central dusky band, and the abdomen is pale yellow, with an indistinct cretaceous-white, central, longitudinal, dorsal band. The palpus is very characteristic, for which see Plate.

5. **Steatoda forda.** (Tab. XXXVI. figg. 7, 7 *a*, ♀.)

*Theridium fordum*, Keyserl. Spinn. Amer., Therid. i. p. 23, t. 1. figg. 9, 9 *a–c* (♀)[1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 236[2].

Type, ♀, in Mus. Brit. Total length 6·2 millim.

*Hab.* North America, Texas[2].—Mexico, Chilpancingo, Amula, Omilteme, Orizaba,

Teapa (*H. H. Smith*), Sierra San Lazaro, Tepic [2]; Guatemala (*Sarg*); Panama, Bugaba (*Champion*).—Venezuela, Caracas [1]; Brazil, Rio Grande [1].

In general appearance this spider is precisely similar to *S. tepidariorum*, but the vulva is quite different in form. It is strange that, among so many females, no males should have been taken; the latter is still unknown.

6. **Steatoda mixta.** (Tab. XXXVI. figg. 8, 8 *a*, ♀.)

*Theridion mixtum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 206, t. 24. figg. 11, 11 *a–f* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 4·75 millim.

*Hab.* Mexico, Atoyac in Vera Cruz, Teapa (*H. H. Smith*); Guatemala, Chiacam (*Sarg* [1]).

Very similar to *S. forda* at first sight, but smaller and with the sharp conical scape of the vulva much more slender and without the broad bulbous base so characteristic of the former species.

7. **Steatoda oblivia.** (Tab. XXXVI. figg. 9, 9 *a*, ♀.)

*Theridion oblivium*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 207, t. 24. figg. 13, 13 *a–e* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

*Hab.* Costa Rica (*Rogers* [1]).

This species is closely allied to *S. mixta*, O. P.-Cambr., but the vulva in the single example in our collection is quite distinct in form.

8. **Steatoda pura.** (Tab. XXXVI. fig. 10, ♀.)

*Theridion purum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 131, t. 17. figg. 6, 6 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith* [1]).

9. **Steatoda transversa.** (Tab. XXXVI. fig. 11, ♂.)

*Theridion transversum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 256, t. 35. figg. 3, 3 *a–e* (♂), 4, 4 *a*, *b* (♀) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3·5, ♀ 4·5 millim.

*Hab.* Mexico, Mexico city (*H. H. Smith* [1]).

10. **Steatoda compressa,** nom. n. (Tab. XXXVI. fig. 12, ♀.)

*Theridion rotundum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 254, t. 34. figg. 7, 7 *a–d* (♀) (nec Keyserling) [1].

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Mexico, Patzcuaro (*H. H. Smith* [1]).

11. **Steatoda aspersa,** sp. n. (Tab. XXXVI. fig. 13, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Guatemala (*Sarg*).

This species belongs to the same group as *S. transversa* and the European *S. varians*; for characters, see the Table and Plate.

12. **Steatoda spiralis.**

*Theridium spirale,* Emerton, Trans. Conn. Acad. Sci. vi. p. 10, t. 1. figg. 2 *a, b* (♂), 2, 2 *c, d* (♀)[1]; Keyserl. Spinn. Amer., Therid. i. p. 56, t. 3. figg. 33, 33 *a* (♀), 33 *b, c* (♂)[2]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 236[3].

Type ♂, gynetype ♀, in coll. Emerton. Total length, ♂ 2·5, ♀ 3 millim.

*Hab.* North America[1].—Mexico, Tepic[3].—Venezuela[2].

13. **Steatoda rostrata.**

*Theridion rostratum,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 204, t. 24. figg. 10, 10 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 3·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]); Guatemala (*Sarg*[1]).

14. **Steatoda morula.** (Tab. XXXVI. figg. 14, 14 *a*, ♀.)

*Theridion morulum,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 254, t. 35. figg. 6, 6 *a–e* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 3·75 millim.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*[1]).

15. **Steatoda rufipes.** (Tab. XXXVI. figg. 15, 15 *a–c*, ♂; 16, 16 *a, b*, ♀.)

*Theridion rufipes,* Lucas, Explor. d'Algérie, Zool. iii. p. 263, t. 16. fig. 5 (♀)[1].

*Theridium rufipes,* Kulczynski, Diss. Math. Phys. Acad. Litt. Cracov. xxxvi. p. 374, t. 6. fig. 33 (♂)[2]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 236[3].

*Theridion luteipes,* O. P.-Cambr. Journ. Linn. Soc., Zool. x. p. 382, t. 12. figg. 46–48 (♀), 49–51 (♂) (1869)[4].

*Theridion lutipes,* O. P.-Cambr. P. Z. S. 1872, p. 280[5].

*Theridion albonotatum,* Taczanowski, Horæ Soc. Ent. Ross. x. p. 56 (♂ ♀)[6].

*Theridium albonotatum,* Keyserl. Spinn. Amer., Therid. i. p. 15, t. 1. figg. 4, 4 *a–e* (♂ ♀)[7].

? *Theridium luteolum,* Blackwall, Ann. & Mag. Nat. Hist. (3) iv. p. 259[8].

*Theridium borbonicum,* Vinson, Aran. Réunion, p. 283, t. 14. fig. 6 (♀) (1864)[9].

*Theridion longipes,* v. Hasselt, Midd.-Sum., Arachn. p. 33 (1892) (sec. Simon)[10].

*Hab.* Mexico, Ciudad in Durango (*Forrer*[4]), Tepic[3]; Guatemala (*Sarg*); Panama,

Bugaba (*Champion*).—South America, Cayenne [6], Lower Amazons (*F. O. P.-C.*); Antilles [6 7].—Europe [4]; Algeria [1]; Madeira [2 8]; Ceylon [5]; Malay Archipelago [10].

M. Simon has very kindly forwarded a male and female of *Theridion rufipes*, Lucas, from Tunis, which he has also taken at Bône, Algeria. These do not differ from the Central-American examples in our collection determined by the Rev. O. P.-Cambridge as his *T. luteipes*, or from those of *T. albonotatum*, Tacz., identified by Keyserling, in the British Museum. I have taken the species plentifully in houses and on the steamers on the Lower Amazons. The specimens, however, from St. Vincent, Antilles, in the British Museum, identified by M. Simon (*cf.* P. Z. S. 1897, p. 861) as *T. rufipes*, Lucas, belong to a very different species. Kulczynski's most excellent description and figure of the palpal organs of the male leave no doubt whatever that he had the true *T. rufipes*, Lucas (sec. Simon), from Madeira, before Lim. Of the other synonyms quoted above, it is probable that *T. albonotatum*, Tacz., is correct, and also *T. luteolum*, Blackw., though one would scarcely like to confirm Simon's opinion that *T. bajulans*, L. Koch, from Egypt and Abyssinia (Die Arachn. p. 21), is also the same species, judging, at any rate, from the published figures. Thorell also gives *T. rufipes*, Lucas, as taken at Tharrawaddy in Burma.

### 16. **Steatoda munifex.** (Tab. XXXVI. fig. 17, ♀.)

*Theridion munifex*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 203, t. 24. figg. 8, 8 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

### 17. **Steatoda viva.**

*Theridion vivum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 293, t. 34. figg. 8, 8 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 1·5 millim.

*Hab.* Costa Rica (*Sarg* [1]).

### 18. **Steatoda albomaculata.** (Tab. XXXVI. figg. 18, 18 *a*, *b*, ♂; 19, 19 *a*, ♀.)

*Chrysso albomaculata*, O. P.-Cambr. P. Z. S. 1882, p. 429, t. 30. figg. 6 *b*, 6 *d*, 6 *h* (♂), 6 *a*, 6 *c*, 6 *e*, 6 *f*, 6 *g* (♀) [1]; Keyserl. Spinn. Amer., Therid. i. p. 152, t. 7. figg. 94, 94 *a*, *b* (♂), 94 *c* (♀) [2].

Type ♂, gynetype ♀, in coll. O. P.-Cambridge. Total length, ♂ 3·5, ♀ 5·75 millim.

*Hab.* North America, Texas [2].—Mexico, Teapa in Tabasco (*H. H. Smith*).—Lower Amazons [1].

### 19. **Steatoda elegans.**

*Argyrodes elegans*, Taczanowski, Horæ Soc. Ent. Ross. ix. p. 118, t. 5. fig. 11 (♀) (1872) [1].
*Chrysso elegans*, Keyserl. Spinn. Amer., Therid. i. p. 151, t. 7. figg. 93, 93 *a–c* (♀) [2].

Type, ♀, in coll. Univ. Warsaw. Total length 3 millim.

*Hab.* Guatemala [2].—French Guiana, Uassa [1].

### 20. **Steatoda voluta,** sp. n. (Tab. XXXVI. figg. 20, 20 *a–c*, ♂.)

Type, ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 2·5, ♀ 3 millim.

*Hab.* Guatemala (*Sarg*).

This species is closely allied to *S. albomaculata*. For differential characters, see Table and Plate.

### 21. **Steatoda rubicunda,** sp. n. (Tab. XXXVI. figg. 21, 21 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 2·5 millim.

*Hab.* Panama, Bugaba (*Champion*).

This spider resembles the male of *S. albomaculata* and *S. voluta*, but the differences in the palpal organs will be apparent from the Table and Plate. The carapace, mandibles, and sternum are bright pale orange; the abdomen white-yellow, blackish in front, with a very small dark apical spot; the legs yellow, with a black slash on each side of the femora.

### 22. **Steatoda sexmaculata.** (Tab. XXXVI. fig. 22, ♀.)

*Theridium sexmaculatum*, Keyserl. Spinn. Amer., Therid. i. p. 82, t. 4. figg. 51, 51 *a* (♀) [1].

Type, ♀, in. coll. O. P.-Cambridge. Total length 1·9 millim.

*Hab.* Guatemala (*Sarg*).—Lower Amazons [1].

### 23. **Steatoda longistylum,** sp. n. (Tab. XXXVI. figg. 23, 23 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 2·5 millim.

*Hab.* Panama, Bugaba (*Champion*).

The abdomen of this specimen is missing, but the palpal organs are very characteristic, for which see Table and Plate. The species, however, probably belongs to an entirely different group of the genus.

### 24. **Steatoda hispida.**

*Theridion hispidum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 253, t. 35. figg. 5, 5 *a–e* (♂) (text published June 1898) [1].
*Theridion hirsutum*, O. P.-Cambr. loc. cit. t. 34. figg. 6, 6 *a–d* (♂) (Oct. 1900) [2].

Types, ♂, of *T. hispidum* and *T. hirsutum*, in coll. Godman & Salvin. Total length of each 2·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

This species has been figured twice, under different names, in Vol. I.

### 25. **Steatoda albula.**

*Theridion albulum,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 255, t. 34. figg. 9, 9 *a–e* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 2 millim.

*Hab.* Panama, Bugaba (*Champion* [1]).

The type of this species cannot now be found.

### 26. **Steatoda confraterna.**

*Theridium confraternus,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 236, t. 14. fig. 11 (♂) (1898) [1].

Type, ♂, in coll. Calif. Acad. Sci., San Francisco. Total length 1·8 millim.

*Hab.* Mexico, Tepic [1].

I no not know this and the following species.

### 27. **Steatoda elevata.**

*Theridium elevatum,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 237 [1].

*Hab.* North America, Texas [1].—Mexico, Tepic [1].

## THERIDION.

*Theridion,* Walckenaer, Tabl. p. 72 (1805).
*Phyllonethis,* Thorell, Europ. Spid. p. 90 (1869).

Type *P. redimitum* (Linn.). Europe.

I have here retained the group originally separated by Thorell under the name *Phyllonethis,* with the type *P. lineata* (Clerck) = *P. redimita* (Linn.); this species, however, was cited as the type of *Theridion* by Latreille, in 1810, and thus *Phyllonethis* simply becomes a synonym of *Theridion.* The group distinguished from *Phyllonethis* by Thorell under *Theridion,* type *T. sisyphium* (Clerck), has also been retained here under the name *Steatoda,* type *S. tepidariorum* (C. L. Koch) [*cf.* Ann. & Mag. Nat. Hist. (7) xi. p. 11 (1902)].

*Males.*

I. Paracymbium of the palpal bulb conspicuously developed.

A. Paracymbium of the palpal bulb, on the outer side, viewed laterally, deeply bifid on the upper margin.

*a.* Embolus of bulb very long and spirally curved; its sheath (conductor) also long, conspicuous, and enlarged at the apex . . *styligerum,* sp. n.

*b.* Embolus of bulb very short, straight or almost so; its sheath (conductor) also very short and inconspicuous.

1. Lower branch of the paracymbium conspicuous and strongly curved, falciform.
   $a^1$. Embolus of bulb with a conspicuous, stout, curved spur standing at right angles from the basal portion (see Emerton's figure) . . . . . *frondeum*, Hentz.
   $b^1$. Embolus of bulb without a spur at its base . . . . . *evexum*, Keyserl.
2. Lower branch of the paracymbium much less conspicuous, with a very fine straight point only on the lower side . . *electum*, O. P.-Cambr.

B. Paracymbium of the palpal bulb, on the outer side, viewed laterally, not deeply bifid on the upper margin.
   $a^2$. Paracymbium U-shaped, very stout, the lower branch being broadly pointed, the upper branch rounded . . . . . *thorelli*, O. P.-Cambr.
   $b^2$. Paracymbium not U-shaped.
      $a^3$. Upper branch of the paracymbium forming a long curved spine.
         $a^4$. Upper branch of the paracymbium broader at its base and rugulose above, longer . . . . . *niveum*, O. P.-Cambr.
         $b^4$. Upper branch of the paracymbium not broader, not rugulose at its base above, shorter . . . . . *uncatum*, sp. n.
      $b^3$. Upper branch of the paracymbium represented by a small cusp only, lower branch forming a rounded lamella . . . *trepidum*, O. P.-Cambr.

II. Paracymbium of the palpal bulb absent . . . . . *vittatum*, O. P.-Cambr.

*Females.*

A. Vulva exhibiting a small circular depression, or pit, on the summit of a low convexity.
   * Vulval cavity without an inner convex prominence; posterior margin slightly reflexed . . . . . *evexum*.
   ** Vulval cavity with an inner convex prominence; posterior margin plain, not reflexed . . . . . *vittatum*.

B. Vulva not exhibiting a circular depression.
   1. Vulva exhibiting a deep transverse cavity close to the genital rima.
      *a*. Posterior margin of the cavity much curved upward and pointed in the middle, exhibiting a dark orifice on each side within the cavity. Spermathecal spots two, elongate-piriform. *thorelli*.
      *b*. Posterior margin of the cavity less curved upward and not pointed in the middle, without visible dark orifices. Spermathecal spots four, circular . . . . . *excavatum*, sp. n.
   2. Vulva not exhibiting a transverse cavity, but with two small orifices, about two diameters apart, near the genital rima. Spermathecal spots two, circular . . . . . *niveum*.

Note.—I have not been able to include *T. frondeum* and *T. trepidum* in the Table of the females. *T. splendidum* (Banks) cannot be certainly identified from the description.

### 1. **Theridion styligerum,** sp. n. (Tab. XXXVI. figg. 24, 24 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 3·25 millim.

Carapace and legs yellow, the former with a slight, dusky, central, forked line, but no marginal line, the latter with the apex of the femora, tibiæ, and protarsi dusky. Abdomen with a central foliated and lateral chalky-white bands; epigynal area and a spot before the spinners black. Mandibles with the usual conical spur on the upper outer side towards the base. Palpal organs absolutely characteristic, with the apical embolus very long spiraliform, and the sheath-like conductor also very long, geniculate and enlarged at its apex.

*Hab.* Guatemala (*Sarg*).

### 2. **Theridion frondeum.**

*Theridium frondeum,* Hentz, Bost. Journ. Nat. Hist. vi. p. 275, t. 9. fig. 7 (♀)[1]; Spid. U.S. p. 146, t. 16. fig. 7 (♀)[2]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 236[3]; Emerton, Trans. Conn. Acad. Sci. vi. p. 15, t. 3. figg. 1, 1 *g* (♂), 1 *a–f*, 1 *h* (♀) (1882)[4].

*Theridium placens,* Keyserl. Spinn. Amer., Therid. i. p. 71, t. 3. fig. 43[5].

*Hab.* North America[4 5], Alabama[1 2].—Mexico, Tepic[3].

Being unable to settle what is the true *T. frondeum,* Hentz, I regard Emerton's identification as correct, for the time being. He has also seen the type of *T. placens,* Keyserl., so that this synonymy can be quoted. The examples, however, of *T. frondeum* in the Keyserling collection in the British Museum certainly do not agree with Emerton's figures; nor do the specimens from St. Vincent, Antilles, identified by E. Simon as *T. frondeum,* agree either with Keyserling's identifications or with Emerton's figures. The fact is that there appear to be numerous species, or at any rate local races, of a group of spiders, with pattern and coloration similar, with the lines of variation also similar, and with the structure also very much alike, any one of which might be identified at a cursory glance with *T. frondeum,* Hentz. There are probably now no means of knowing what the characters of this species really are; and the only way of settling it would be to decide upon the commonest form found in Georgia, U.S.A., in character not inconsistent with Hentz's description and figure, and call this *T. frondeum.* Perhaps Mr. Emerton's identification of this species is based on examples from Georgia; but since he does not say on what grounds he has decided the form figured to be *T. frondeum,* one can form no judgment as to the value of his opinion.

### 3. **Theridion evexum.** (Tab. XXXVI. figg. 25, 25 *a–c*, ♂; 26, ♀.)

*Theridion evexum,* Keyserl. Spinn. Amer., Therid. i. p. 65, t. 3. figg. 39, 39 *a* (♀)[1].

*Phyllonethis electa,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 165, t. 20. figg. 2, 2 *a–d* (♀) (nec ♂)[2].

Type ♀, deuterotype ♂, of *T. evexum,* in Mus. Brit., total length, ♀ 6, ♂ 4·25 millim.; gynetype, ♀, of *P. electa,* in coll. Godman & Salvin, total length 7 millim.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith* [2]).—Colombia[1].

4. **Theridion electum.** (Tab. XXXVI. fig. 27, ♂.)

*Phyllonethis electa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 165, t. 20. figg. 3, 3 *a–e* (♂) (nec ♀) [1].

Type, ♂, in coll. Godman & Salvin. Total length 4·25 millim.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith* [1]).

This spider is certainly not identical with the specimens identified by me as the males of *T. evexum* (Keyserl.), while the female ascribed to *P. electa* agrees perfectly with Keyserling's species.

5. **Theridion thorelli.** (Tab. XXXVI. figg. 28, 28 *a*, *b*, ♂; 29, 29 *a–c*, ♀.)

*Phyllonethis thorellii*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 132, t. 18. figg. 1, 1 *a*, *b* (♂), 5, 5 *a*, *b* (♀) [1].

*Phyllonethis adjacens*, O. P.-Cambr. loc. cit. p. 166, t. 20. figg. 1, 1 *a–c* (♀) [2].

Type ♂, gynetype ♀, of *P. thorelli*, in coll. Godman & Salvin, total length ♂ 3·25, ♀ 5 millim.; type, ♀, of *P. adjacens*, in coll. Godman & Salvin, total length 3 75 millim.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith* [1 2]).

I am unable to distinguish *T. adjacens* from the female of *T. thorelli*. This species is also very closely allied to *T. calycinatum*, Holmb., of which there are many examples from the Argentine Republic in the British Museum.

6. **Theridion niveum.** (Tab. XXXVII. figg. 1, 1 *a*, ♂; 2, ♀.)

*Theridion niveum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 255, t. 34. figg. 11, 11 *a–e* (♂) [1].

Type ♀, deuterotype ♂, in coll. Godman & Salvin. Total length, ♀ 3·5, ♂ 2 millim.

Carapace and legs pale yellow, in both sexes, the apex of the tibiæ and protarsi of i. and iv. sometimes black in the female. Abdomen in the male pale yellow, with a central chalky-white band, with a row of small, dull, dark spots on each side, variable in number and size, often coalescing to form a black band. In the female there is often a round dark blotch in front, with a central foliated and lateral chalky-white bands, and sometimes two conspicuous black spots in the posterior third and one above the anal tubercle. The coloration is, however, very variable. The mandibles in the male have the usual conical spur, but it is inconspicuous in this case.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*); Panama, Bugaba (*Champion* [1]).

7. **Theridion uncatum,** sp. n. (Tab. XXXVII. fig. 3, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4 millim.

Carapace yellow, with a slender, brown, central line, forked at the base of the cephalic region, and a marginal brown line. Abdomen yellow-white, with four small black spots on the dorsal area, the anterior pair being the smaller; spinners basally suffused with black; ventral area with a black spot before the spinners and the epigynal area black, with an oval pale spot in the centre on the posterior margin.

Legs yellow; femora, tibiæ, and protarsi dusky at their apex. Mandibles with the usual conical spur towards the base on the upper outer side. (For specific differences, see Table and Plate.)

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 8. **Theridion trepidum.** (Tab. XXXVII. figg. 4, 4 *a*, ♂.)

*Theridion trepidum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 256 (♀), t. 34. figg. 10, 10 *a–d* (♂) [1].

Type ♀, androtype ♂, in coll. Godman & Salvin. Total length, ♀ 3·5, ♂ 2 millim.

Carapace yellow, with a central brown forked line, but no marginal line. Abdomen with a chalky-white, central, foliated band, broadly margined with black in the anterior half; lateral area chalky-white, with a yellowish tinge; ventral area flesh-brown. Legs yellow, with a very slight dusky olive tinge at the apex of the femora, tibiæ, and protarsi, the latter segments having also a very faint central annulus. Mandibles with the usual conical spur on the outer upperside towards the base.

*Hab.* MEXICO, Omilteme in Guerrero (*H. H. Smith*); GUATEMALA, Montaña de Chilasco (*Sarg* [1]).

### 9. **Theridion excavatum,** sp. n. (Tab. XXXVII. figg. 5, 5 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 3·5 millim.

Carapace yellow, with a slender, forked, dusky, central line. Legs yellow; protarsi slightly tinged with brown at the extreme apex. Abdomen entirely covered dorsally and laterally with chalky-white, with the usual cardial line and the diverticula from it; ventral area dull white, with two small black spots above the spinners on each side, and a large, central, black blotch between the genital rima and the spinners. Vulva exhibiting a transverse cavity, the posterior margin produced, but not nearly so much as in *T. thorelli*, and with four small circular spermathecæ beneath the surface in front.

*Hab.* GUATEMALA (*Sarg*).

### 10. **Theridion vittatum.** (Tab. XXXVII. figg. 6, 6 *a*, ♂; 7, 7 *a*, ♀.)

*Achæa vittata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 130, t. 17. figg. 11, 11 *a–c* (♀) [1].

*Thwaitesia vittata*, O. P.-Cambr. loc. cit. i. p. 197 [2].

*Thwaitesia lepida*, O. P.-Cambr. loc. cit. i. p. 197, t. 25. figg. 5, 5 *a–d* (♀) [3].

Types ♀, of *A. vittata* and *T. lepida*, deuterotype ♂, in coll. Godman & Salvin. Total length, ♀ 8, ♂ 4 millim.

*Hab.* MEXICO, Atoyac in Vera Cruz, Teapa in Tabasco [1 2] (*H. H. Smith*); GUATEMALA, Cahabon (*Sarg* [3]); PANAMA, Bugaba (*Champion*).

No mention is made on p. 197 (*loc. cit.*) as to the characters wherein *Thwaitesia lepida* differs from *T. vittata*, and there is no variation in the form of the vulva. The differences in the coloration are only individual, such as are constantly met with in spiders of this group—*T. lepida* being a very large and long-matured specimen, with the femora more decidedly annulated with black. In some examples, small and recently mature, the femora are either white or have an annulus near the apex.

### 11. **Theridion splendidum.**

*Chrysso splendida*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 237, t. 14. fig. 13 (♀) [1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 7·2 millim.

*Hab.* MEXICO, Tepic [1].

It is possible that this species is identical with *T. vittatum* (O. P.-Cambr.); but I do not think, from Banks's description and figure, that it is related to *Steatoda albomaculata* (O. P.-Cambr.), the type of *Chrysso*.

## THERIDULA.

*Theridula*, Emerton, Trans. Conn. Acad. Sci. vi. p. 25 (1882).
*Mesopneustes*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 126 (1894).

Type of *Theridula*, *T. sphærula*, Emerton, Connecticut, N. America; that of *Mesopneustes*, *M. nigrovittata*, O. P.-Cambridge, Mexico.

The minute forms belonging to this genus are very like small *Steatodæ*, but they have the anterior row of eyes procurved and the tibia of the palpus of the male enormously developed, concave on the inner side; while the bulb itself is very simple, with a variously curved spiraloid spine at its apex.

The species occurring in the collection before me may be recognized as follows:—

*Males.*

A. Spine at the apex of the palpal bulb longer, more widely curved, its point extending well beyond the apex of the tarsal sheath . . . . . *nigrovittata*, O. P.-Cambr.
B. Spine at the apex of the palpal bulb shorter, less widely curved, corkscrew-like, its point not extending beyond the apex of the tarsal sheath . . . . . *faceta*, O. P.-Cambr.

*Females.*

A. Legs entirely yellow. Vulva without a pair of anterior circular spermathecal discs evident from the exterior. Abdomen black, with white or yellow spots, very variable . *opulenta*, Walck. (sec. Simon).
B. Legs brown, except the femora, coxæ, and trochanters, which are yellow. Vulva with a pair of circular spermathecal discs evident from the exterior. Abdomen yellow-grey, with a single dusky blotch on the median posterior dorsal area . . *faceta*.

### 1. **Theridula nigrovittata.** (Tab. XXXVII. fig. 8, ♂.)

*Mesopneustes nigrovittata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 126, t. 17. figg. 3, 3 *a–d* (♂), 4, 4 *a*, *b* (♂ var.) [1].

Type, ♂, in coll. Godman & Salvin. Total length 2·75 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

This spider, which is in all probability the male of *T. opulenta*, Walck., is very similar in general characters to the male of *T. faceta*; the apical spine on the bulb of the palpus is, however, perfectly distinct in form. The position of the genital rima and of the spiracular orifices is quite normal.

### 2. **Theridula faceta.** (Tab. XXXVII. figg. 9, ♂; 10, 10 *a*, ♀.)

*Theridion facetum,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 143, t. 16. figg. 14, 14 *a–c* (♂)[1].

Type ♂, deuterotype ♀, in coll. Godman & Salvin. Total length, ♂ 2, ♀ 2·5 millim.

*Hab.* Mexico, Orizaba (*H. H. Smith*); Guatemala (*Sarg* [1]).

The female is here noted for the first time, and is in general appearance similar to the male. For special characters, see the Table and Plate. This species is evidently, according to the drawings of the palpus by Emerton, very closely allied to, if not identical with, his *T. sphærula*. The coloration of the female is, however, constantly different, and without a more detailed drawing of the spine at the apex of the bulb of the male one cannot be quite sure. The greenish-yellow spot on the abdomen in *T. sphærula* is replaced by a black spot in *T. faceta*, while in the latter there are no lateral spots at all. These characters may, at the same time, be simply due to individual variation.

If these two forms are conspecific, I cannot regard them as also identical with *T. tricornis*, O. P.-Cambr., *T. quinqueguttata*, Keyserl., or *T. triangularis*, Keyserl.

### 3. **Theridula opulenta.** (Tab. XXXVII. figg. 11, 11 *a–d*, ♀.)

*Theridion opulentum,* Walck. Ins. Apt. ii. p. 322 (1841)[1].

*Theridion gonygaster,* E. Simon, Mém. Soc. Liége, (2) v. p. 108, t. 2. fig. 24 (♀)[2]; Arachn. Fr. v. p. 109 (♂ ♀) (1881)[3].

*Chrysso cordiformis,* Butler, P. Z. S. 1882, p. 763, t. 57. fig. 2 (♀)[4].

*Chrysso nivipictus,* Butler, loc. cit. p. 764, t. 57. figg. 1, 1 *a* (♀)[5].

*Theridula triangularis,* Keyserl. Spinn. Amer., Therid. ii. p. 30, t. 11. figs. 149, 149 *a* (♀)[6].

*Theridula quinqueguttata,* Keyserl. loc. cit. p. 31, t. 11. figg. 150, 150 *a* (♀)[7].

*Theridula quadripunctata,* Keyserl. loc. cit. p. 32, t. 11. figg. 151, 151 *a* (♀)[8].

*Theridula tricornis,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 208, t. 25. figg. 1, 1 *a–d* (♀)[9].

Types, ♀, of *C. cordiformis* and *C. nivipictus* in Mus. Brit.; of *T. tricornis* in coll. Godman & Salvin. Total length of *T. tricornis* 2·75 millim.

*Hab.* North America[1], Florida[8].—Mexico, Teapa in Tabasco (*H. H. Smith*[9]).—Peru[6 7].—Corsica[2 3]; Madagascar[4 5].

If, as Simon suggests (and, unless the males of each of these forms are decidedly different, as seems to be highly probable), *T. tricornis* and *T. opulenta* are conspecific, then the intermediate form, *T. triangularis*, will probably also be synonymous. I cannot at present, however, agree that *T. sphærula* is identical with *T. opulenta*, though it may be with *T. faceta*. *T. nigrovittata* is in all probability the male of *T. opulenta*: if this is the case, then they are quite distinct from *T. sphærula* and *T. faceta*. But at present these points cannot be definitely settled.

## ANELOSIMUS.

*Anelosimus*, E. Simon, Ann. Soc. Ent. Fr. 1891, p. 7.

Type *A. socialis*, E. Simon, =*A. eximius* (Keyserling). Venezuela.

The spiders referred to this genus form a small group closely allied to *Steatoda*, but distinguishable from it by the peculiar form of the bulb of the male palpus, and also by the possession of a very minute colulus, whose presence is marked by two fine bristles springing from its apex. The species at present recognized resemble each other very closely in general appearance, and are remarkable for their habit of living together in communities, consisting of great numbers of individuals who spin a common snare, very tangled and often of immense size. I have myself seen their webs spun up to a height of fourteen or fifteen feet amongst the foliage, being at the same time a yard or more across, and the snare is usually shared by numbers of a species of *Uloborus*. If the bushes be tapped, the Theridioids descend in quite a small shower, hanging by a thread, to seek safety on the ground. Otherwise, the female sits beneath a leaf, with legs stretched out before and behind, in close proximity to her single small spherical egg-cocoon.

The species known to me, including the type of the genus, which has, however, not yet been taken in Central America, may be recognized as follows:—

*Males.*

*a*. Apex of embolus of palpus simple, not bifid; bulb itself more spiraloid . . . . . [*eximius*, Keyserl.]

*b*. Apex of embolus of palpus bifid or bibranchiate; bulb itself less spiraloid.

1. Apex of embolus of palpus having a stout inner branch set at right angles and much enlarged, forming a triangular hammer-head, at its tip . . . . . *jucundus*, O. P.-Cambr.
2. Apex of embolus of palpus having an enlarged inner branch, but not set at right angles nor taking a hammer-head form . . . *studiosus*, Hentz.

*Females.*

*a*. Vulva with two closely adjacent brown circular discs anteriorly . . [*eximius*.]

*b*. Vulva without discs anteriorly . . . . . { *jucundus*. / *studiosus*.

Note.—I am unable as yet to satisfactorily distinguish between the females of *A. jucundus* and *A. studiosus*.

1. **Anelosimus jucundus.** (Tab. XXXVII. figg. 14, 14 *a–d*, ♂; 15, 15 *a*, *b*, ♀.)

*Theridion jucundum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 166, t. 21. figg. 13, 13 *a–d* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*[1]); Guatemala (*Sarg*).

2. **Anelosimus studiosus.** (Tab. XXXVII. fig. 16, ♂ ; 17, ♀ .)

*Theridium studiosum*, Hentz, Journ. Bost. Soc. Nat. Hist. vi. p. 274, t. 16. fig. 5 (♀)[1]; Spid. U.S. p. 145, t. 16. fig. 5 (♀)[2]; Keyserl. Spinn. Amer., Therid. i. p. 20, t. 1. figg. 7, 7 *a*, *b* (♀), 7 *c* (♂)[3]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 236[4].

*Theridion studiosum*, E. Simon, P. Z. S. 1897, p. 862[5].

*Hab.* North America[1 2 3].—Mexico, Orizaba, Teapa (*H. H. Smith*), Tepic[4]; Guatemala (*Sarg*).—Colombia[3]; Venezuela[3]; Peru[3]; Brazil, Rio Parana[3] (*Rogers*[4]); Antilles, St. Vincent[5].

Since no American arachnologist has hitherto identified the species which might most reasonably be regarded as *A. studiosus* (Hentz), one must for the time being accept Keyserling's determination. There are before me female examples, in his collection, from the Mississippi, Argentina, and Peru; they are identical with others from Venezuela in the same collection, and also with specimens from St. Vincent, identified by Simon as *Theridion studiosum*, Hentz. These, however, are quite different from the females from Bogota in Keyserling's collection labelled *T. studiosum*. The latter more nearly resemble *A. jucundus*, ♀ , var., see Plate.

The male from Rio Janeiro, labelled by Keyserling *T. studiosum*, is, again, totally dissimilar from *A. jucundus*. It is possible, however, that both *T. studiosum*, Hentz, and *T. jucundum*, O. P.-Cambr. (as Simon thinks probable), the varieties here figured, and also those from Bogota, are all one and the same species, the larger and more highly developed examples being *T. jucundum*, the smaller and more slender being *T. studiosum* (sec. Keyserling and Simon).

It is also possible, on the other hand, that there are several species of these social spiders, and that the varieties above noted may prove to be really good species. I cannot at present reconcile myself to either view, but must be content with giving drawings and descriptions of them.

There is not the smallest doubt in my own mind that *Theridion eximium*, Keyserl., of which the type, ♀ , is before me, is quite distinct from the females of *T. jucundum* and *T. studiosum*.

Simon (Hist. Nat. Araign. éd. 2, i. p. 548) regards *T. eximium*, Keyserl., as identical with his *Anelosimus socialis* [Ann. Soc. Ent. Fr. 1891, p. 7, t. 2 (♀)]. It is scarcely probable that this species, so abundant in Venezuela and Brazil, does not occur in Central America, and since it belongs to the same group as *A. jucundus* and *A. studiosus*, I give a figure of the palpus and vulva (Tab. XXXVII. figg. 12, ♂ ; 13, ♀ ); the latter from Keyserling's type, the former from an example from the Lower Amazons, where I met with it in abundance.

## THWAITESIA.

*Thwaitesia*, O. P.-Cambridge, P. Z. S. 1881, p. 766.

Type *T. margaritifera*, O. P.-Cambr. Ceylon.

The members of this genus remind one of both *Theridion* and *Argyrodes*, the

resemblance to some species of the latter being due to the conical shape of the abdomen and the silvery pearl-like scales with which they are spangled. The colulus is present, very minute, but furnished at its apex with a pair of fine bristles; while the tarsal comb on the fourth pair of legs is also strongly in evidence.

1. **Thwaitesia affinis.** (Tab. XXXVII. figg. 18, ♂; 19, 19 *a*, ♀.)

*Thwaitesia affinis*, O. P.-Cambr. P. Z. S. 1882, p. 431, t. 31. fig. 8 *a* [1]; Biol. Centr.-Amer., Arachn. Aran. i. p. 196, t. 25. figg. 2, 2 *a*, *b* (♀), 3, 3 *a–d* (♂) [2].

Type, ♀, in coll. O. P.-Cambridge; androtype, ♂, in coll. Godman & Salvin. Total length, ♀ 4, ♂ 3 millim.

*Hab.* Panama, Bugaba (*Champion* [2]).—South America, Amazons [1].

## EURYOPIS.

*Euryopis*, Menge, Preuss. Spinn. p. 174 (1868).

Type *E. flavomaculata* (C. L. Koch). Europe.

Eyes of posterior row subequal, forming a slightly recurved line; anterior row feebly procurved, centrals a little larger and further from each other than from the laterals. Clypeus higher than the central ocular quadrangle. Tarsal comb present beneath tarsus iv. Colulus present, but very minute. Sternum acuminate posteriorly.

The species occurring in Central America may be recognized as follows:—

*Males.*

| | |
|---|---|
| *a*. Bulb of palpus with two long stout spines at its apex . . . . . | *lineatipes*, O. P.-Cambr. |
| *b*. Bulb of palpus with a single, short, slightly falciform spur at its apex. | *spinigera*, O. P.-Cambr. |

*Females.*

| | |
|---|---|
| A. Vulva presenting a plain circular cavity, with a narrow chitinous margin posteriorly. No discs representing the position of the spermathecæ visible . . . . . | *lineatipes*. |
| B. Vulva presenting a more or less transverse cavity, with a pair of discs representing the position of the spermathecæ. | |
| *a*. Vulva presenting a broad transverse oval cavity, the spermathecal discs being one diameter apart . . . . . | *probabilis*, O. P.-Cambr. |
| *b*. Vulva presenting a narrow transverse oblong cavity, the spermathecal discs being only one-fourth of a diameter apart . . . . | *proxima*, O. P.-Cambr. |

1. **Euryopis lineatipes.** (Tab. XXXVII. figg. 20, ♂; 21, ♀.)

*Euryopis lineatipes*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. 108, 131, t. 15. figg. 6, 6 *a–d* (♀) [1], t. 16. figg. 2, 2 *a*, *b* (♂) [2].

Type ♀, androtype ♂, in coll. Godman & Salvin. Total length, ♀ and ♂, 4·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*); Guatemala (*Sarg* [1]); Panama, Bugaba (*Champion* [2]).

### 2. **Euryopis spinigera.** (Tab. XXXVII. fig. 22, ♂.)

*Euryopis spinigera*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 146, t. 19. figg. 2, 2 *a–d* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 2·5 millim.

*Hab.* GUATEMALA (*Sarg*[1]).

### 3. **Euryopis probabilis.** (Tab. XXXVII. fig. 23, ♀.)

*Euryopis probabilis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 295, t. 39. figg. 1, 1 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 2·75 millim.

*Hab.* MEXICO, Orizaba (*H. H. Smith*[1]).

### 4. **Euryopis proxima.** (Tab. XXXVII. fig. 24, ♀.)

*Euryopis proxima*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 296, t. 39. figg. 2, 2 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 2·75 millim.

*Hab.* MEXICO, Orizaba (*H. H. Smith*[1]).

## EPISINUS.

*Episinus*, Walckenaer, in Latreille's Gen. Crust. et Ins. iv. p. 371 (1809).

Type *E. truncatus*, Walck. Europe.

The spiders belonging to this genus are similar in general character to those of *Spintharus*, but they have the posterior row of eyes straight or recurved, and the central eye-quadrangle not narrower, but if anything broader, in front; while the central anterior eyes are more or less projecting. The colulus is small, but distinct, and the tarsal comb on the fourth pair of legs is also present.

The two species occurring in the collection before me may be separated as follows by the form of the spurs at the apex of the palpal bulb:—

A. The spur (*c* on Plate) strongly curved; the spur (*b*) broader and dilate at the apex . . . . . *putus*, O. P.-Cambr.

B. The spur (*c*) straight, though slightly sinuous; the spur (*b*) long and narrow, not dilate at the apex . . . . . *cognatus*, O.-P. Cambr.

### 1. **Episinus putus.** (Tab. XXXVII. figg. 25, 25 *a*, ♂.)

*Episinus putus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 132, t. 18. figg. 7, 7 *a–d* (♂)[1].

*Episinus bigibbosus*, O. P.-Cambr. loc. cit. pp. 167, 208, t. 20. figg. 8, 8 *a–d* (♀), t. 26. figg. 6, 6 *a–c* (♂)[2].

Type of *E. putus*, ♂, and of *E. bigibbosus*, ♀, and androtype, ♂, in coll. Godman & Salvin. Total length, ♂ 4·5, ♀ 5·75 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]); Panama, Bugaba (*Champion* [2]).

The palpal organs of *E. putus*, ♂, are precisely similar to those of *E. bigibbosus*, ♂.

### 2. **Episinus cognatus.** (Tab. XXXVII. figg. 26, 26 *a*, ♂; 27, ♀.)

*Episinus cognatus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 109, t. 15. figg. 2, 2 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

This species is exceedingly closely allied to *E. putus*, but there are distinct differences, very hard to observe, except under a high power, in the form of the spurs at the apex of the palpal organs. The two species are sure to be confused together, unless a very careful examination be made, for the organs are in general character precisely alike.

## SPINTHARUS.

*Spintharus*, Hentz, Bost. Journ. Nat. Hist. vi. p. 283 (1850).

Type *S. flavidus*, Hentz. N. America.

The species included under this genus differ from those placed under *Argyrodes*, *Rhomphœa*, and *Ariamnes* in having no broad transverse groove on the carapace behind; the central anterior eyes are also much smaller than the laterals, and the central eye-quadrangle is narrower in front. The central posterior eyes are at least two diameters apart. The colulus is very minute, its existence being indicated by the presence of two hairs or bristles on its apex; and the tarsal comb on the fourth pair of legs is very distinct.

A single species only, which I identify as *S. flavidus*, Hentz, occurs in the collection before me.

### 1. **Spintharus flavidus.** (Tab. XXXVII. figg. 28, ♂; 29, 29 *a–d*, ♀.)

*Spintharus flavidus*, Hentz, Bost. Journ. Nat. Hist. vi. p. 284, t. 10. fig. 8 (♀) (1850)[1]; Spid. U.S. (ed. Burgess), p. 156, t. 17. fig. 8 (♀)[2]; Keyserl. Spinn. Amer., Therid. i. p. 176, t. 8. figg. 107, 107 *a–d* (♀), 107 *e–g* (♂)[3]; Simon, P. Z. S. 1894, p. 521 (♀)[4]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 237[5]; Emerton, Trans. Conn. Acad. Sci. vi. p. 28, t. 5. fig. 7 (♀)[6].

*Spintharus elongatus*, Keyserl. loc. cit. p. 178, t. 8. figg. 108, 108 *a* (♀)[7].

*Spintharus lineatus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 190, t. 23. figg. 11, 11 *a–f* (♂)[8].

*Spintharus affinis*, O. P.-Cambr. loc. cit. p. 190, t. 24. figg. 2, 2 *a–f* (♂)[9].

Type, ♀, of *S. flavidus*, non-extant; of *S. elongatus*, ♀, in coll. Univ. Warsaw; of *S. lineatus*, ♂, and *S. affinis*, ♂, in coll. Godman & Salvin. Total length of *S. flavidus*, ♂ 3·25, ♀ 4·5 millim.

*Hab.* North America [1 2 3 6], Lower California [5].—Mexico, Omilteme (*H. H. Smith*); Guatemala, Chichochoc [8], Coban [9] (*Sarg*); Panama, Bugaba (*Champion*).—Peru [7]; Antilles, St. Vincent [4].

Having compared an example ( ♀ ) of *S. elongatus*, Keyserl., with this author's own identifications of *S. flavidus* ( ♀ ), and with numerous specimens from Central America, I cannot but regard the two forms as identical. The abdomen varies in shape and length, as well as in the dorsal pattern ; while the vulva appears to vary in form in different examples, according to conditions of shrinkage &c.

The types ( ♂ ) of *S. lineatus* and *S. affinis* are identical, the palpal organs being precisely alike in both ; but the spine in *S. lineatus* is more extended, while in *S. affinis* the apical portion is partially concealed beneath the membrane. These specimens have the male palpus formed as in Keyserling's figure of *S. flavidus* (no males occur in his collection), and there is no reason for supposing them to be other than the sexual complements of the females occurring in the same collection, so that *S. lineatus* and *S. affinis* are the males of *S. flavidus*.

## DIPŒNA.

*Dipœna*, Thorell, Europ. Spid. p. 91 (1869).

Type *D. melanogaster* (C. L. Koch). Europe.

In the type of this genus the colulus is present as a small tubercle with one or two bristles set on its apex. The tarsal comb is present beneath tarsus iv. The central ocular quadrangle is much wider in front, the posterior centrals being less than one diameter apart. The tibiæ and protarsi i. and ii. are armed with rows of very fine long spines on their inner side.

A single species only, which probably belongs to this genus, has been detected in the collection under examination.

### 1. Dipœna proba.

*Dipœna proba*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 294, t. 37. figg. 9, 9 *a–d* ( ♂ ), 10, 10 *a–c* ( ♀ ) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 1·5, ♀ 2 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

## STEMMOPS.

*Stemmops*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 125 (1894).
*Ataulfo*, O. P.-Cambridge, loc. cit. p. 178 (1896).
*Mettus*, O. P.-Cambridge, loc. cit. p. 292 (1899).

Type of *Stemmops*, *S. bicolor*, O. P.-Cambr. ( ♂ ); of *Ataulfo*, *A. nugax*, O. P.-Cambr. ( ♂ ); of *Mettus*, *M. reclivis*, O. P.-Cambr. ( ♀ ): all three from Mexico.

The two male type-specimens are identical species, and the female type is most probably their sexual complement.

Posterior central eyes largest ; posterior row slightly procurved ; anterior eyes subequal. Clypeus as high as the central ocular quadrangle. Tarsal comb present on tarsus iv. Colulus very minute. Sternum broadly produced behind.

### 1. Stemmops bicolor.

*Stemmops bicolor*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 125, t. 17. figg. 5, 5 *a–g* (♂)[1].

*Ataulfo nugax*, O. P.-Cambr. loc. cit. p. 178, t. 22. figg. 7, 7 *a–f* (♂)[2].

*Mettus reclivis*, O. P.-Cambr. loc. cit. p. 293, t. 38. figg. 8, 8 *a–e* (♀)[3].

Types, ♂, of *S. bicolor* and of *A. nugax*, and type, ♀, of *M. reclivis*, in coll. Godman & Salvin. Total length of each, 2·5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1 2 3]).

## LIGER.

*Liger*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 210 (1896).

Type *L. incomta*, O. P.-Cambr. Guatemala.

Eyes of posterior row subequal; posterior row slightly recurved; anterior eyes subequal. Clypeus nearly twice as high as the central ocular quadrangle. Tarsal comb present beneath tarsus iv. Colulus very minute. Sternum broadly produced behind.

### 1. Liger incomta.

*Liger incomta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 210, t. 28. figg. 6, 6 *a–f* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 2·25 millim.

*Hab.* Guatemala (*Sarg* [1]).

## EGILONA.

*Egilona*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 187 (1896).

Type *E. munda*, O. P.-Cambr. Guatemala.

Eyes of posterior row subequal; posterior row straight; anterior eyes subequal. Clypeus as high as the central ocular quadrangle. Tarsal comb present beneath tarsus iv. Colulus very minute. Sternum broadly produced behind.

### 1. Egilona munda.

*Egilona munda*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 188, t. 23. figg. 7, 7 *a–g* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 2·25 millim.

*Hab.* Guatemala, Chipor (*Sarg* [1]).

## ACHÆA.

*Achæa*, O. P.-Cambridge, P. Z. S. 1882, p. 428.

Type *A. insignis*, O. P.-Cambr. (=*A. trapezoidalis*, Tacz., sec. Simon). Amazons.

This genus differs from *Theridion* and other closely allied groups by the great size and prominence of the anterior central eyes, these being at least twice as large as the anterior laterals; while the colulus is present, though very minute, and distinguished by two hairs set on the apex. Sternum broad behind.

The two species recorded from Central America may be known by the following characters :—

*a*. Apex of palpal bulb rounded, with a short, truncate, projecting lamina, having a short black spine lying beneath it . . . . . *crocea*, O. P.-Cambr.

*b*. Apex of palpal bulb narrowed into a truncate slightly bifid termination. *mendax*, O. P.-Cambr.

### 1. **Achæa crocea.** (Tab. XXXVII. figg. 30, 30 *a*, ♂.)

*Achæa crocea*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 210, t. 26. figg. 11, 11 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 2 millim.

*Hab.* GUATEMALA, Cubilguitz (*Sarg*[1]).

### 2. **Achæa mendax.** (Tab. XXXVII. figg. 31, 31 *a*, ♂.)

*Achæa mendax*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 294, t. 39. figg. 7, 7 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 2 millim.

*Hab.* GUATEMALA, Coban (*Sarg*[1]).

## ARGYRODES.

*Argyrodes*, E. Simon, Hist. Nat. Araign. i. p. 253 (1864).

Type *A. epeiræ*, E. Simon, = *A. argyrodes* (Walck.). Mediterranean Region.

The spiders belonging to this genus are well known to most collectors. They are found abundantly in the webs of various species of *Nephila* and *Argyope*, where they live amongst the confused tangle of threads, hanging like minute silver globules, the females making their small characteristic wine-glass-shaped brown cocoons which are hung up by the stem.

It is difficult to separate the species of *Argyrodes* from those of *Rhomphæa*, if, indeed, the two genera do not run together.

The tibiæ of the first pair of legs are shorter than the femora and longer than the protarsi. The central posterior eyes are less than one diameter apart and are not adjacent to the laterals, as in *Rhomphæa*. The colulus is very distinct and the tarsal comb present on the fourth pair of legs. Figures of the typical European species, *A. argyrodes* (Walck.), are added for comparison (Tab. XXXVIII. figg. 9, 9 *a–d*, ♂ ; 10, ♀).

The species known to me from Central America may be recognized by the following characters :—

*Males.*

A. The four central eyes situated on apical portion of the posterior lobe of the cephalic region ; the lateral pair on each side being three or four diameters removed from the base of the fissure.

*a*. Cephalic region deeply bifid; anterior lobe incrassate, compressed at the apex. Tarsal sheath of palpus deeply emarginate at its apex . . . . . *argentatus*, O. P.-Cambr.

*b*. Cephalic region bilobate, but not deeply bifid; anterior lobe evenly rounded.

*a*¹. The two cephalic lobes having a deep concavity between them on each side below the anterior central eyes. Palpi with an obliquely transverse, circularly curved, conspicuous, black spine towards the apex of the bulb . *obtusus*, O. P.-Cambr.

*b*¹. The two cephalic lobes without any concavities between them. Bulb of palpus with a stout, pale yellow, circularly curved, slender process towards the apex, its point directed upwards, but no transverse black spine.

*a*². Abdomen produced at the apex behind, and also with a slight rounded prominence on each side . . . . *americanus*, Tacz.

*b*². Abdomen evenly rounded behind . . . . . *argenteo-maculatus*, O. P.-Cambr.

B. The four central eyes situated on the basal portion of the posterior lobe of the cephalic region, the lateral pair on each side being situated close to the base of the fissure . . . . *trigonus*, Hentz.

### *Females.*

A. Abdomen compressed above, not apically developed, truncate posteriorly.

*a*. Vulval area very small. Central scape very short-rounded, with reflexed margin; lateral concavities very small, circular. (Abdomen with a single, small, central, posterior, dorsal tubercle, besides a lateral apical tubercle on each side.) . . . . . *americanus*.

*b*. Vulval area very much larger. Central scape much longer, more pointed at the apex; lateral concavities larger, elongate-oval.

*a*¹. Abdomen with a single, very short, blunt, posterior, central, dorsal tubercle. Scape of vulva much longer, attenuate in the middle, dilate at the apex, recurved upwards . . . . . *subdolus*, O. P.-Cambr.

*b*¹. Abdomen with three small, central, posterior, dorsal tubercles, the upper one short, the lower pair transversely situate and longer, bifurculate. Scape of vulva much shorter, neither attenuate in the middle, nor dilate at the apex, nor recurved upward, but depressed . . . *maculosus*, O. P.-Cambr.

B. Abdomen not compressed above, but dorsally and apically developed.

*a*. Apex of abdomen not bilobate.

*a*¹. Abdomen entirely covered with bright silvery scales, except on the ventral area and on the central anterior dorsal line . . . . . *argentatus*.

*b*¹. Abdomen sparsely covered with isolated silvery scales, with an apical and lateral brown blotch, as well as a central dorsal anterior line with a transverse bar at its apex . . . . . *jucundus*, O. P.-Cambr.

*b*. Apex of abdomen bilobate . . . . . *trigonus*.

### 1. **Argyrodes argentatus.** (Tab. XXXVIII. figg. 1, 1 *a*, ♂; 2, 2 *a*, ♀.)

*Argyrodes argentata*, O. P.-Cambr. P. Z. S. 1880, p. 325, t. 28. figg. 5, 5 *a* (♂), 5 *b* (♀) [1].

Type ♂, gynetype ♀, in coll. O. P.-Cambridge. Total length, ♂ 2, ♀ 4 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*).—Lower Amazons [1].—East Indies [1]; Ceylon [1]; Madagascar [1].

I have not seen the type of this species, but Mexican examples referred to it were identified by the Rev. O. Pickard-Cambridge. The vulva of the female consists of a black base with an irregular dull red excrescence, the latter being probably an excretion, which conceals the true form of the external parts.

### 2. **Argyrodes obtusus.** (Tab. XXXVIII. figg. 3, 3 *a–c*, ♂.)

*Argyrodes obtusa*, O. P.-Cambr. P. Z. S. 1880, p. 338, t. 30. figg. 17, 17 *b*, *c*, *j*, *k* (♂) [1].

*Argyrodes linguata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 259, t. 39. figg. 1, 1 *a–e* (♂) [2].

Type, ♂, of *A. obtusa*, in coll. O. P.-Cambridge, total length 2·75 millim.; of *A. linguata*, ♂, in coll. Godman & Salvin, total length 2·5 millim.

*Hab.* Guatemala, Santa Ana (*Sarg* [2]).—Lower Amazons [1].

I have not seen the type of this species, but the Guatemalan specimen figured was identified by the Rev. O. Pickard-Cambridge and labelled by him *A. obtusus*. It entirely agrees with his figures of the latter, and is also identical with the type of *A. linguatus* now before me.

### 3. **Argyrodes americanus.** (Tab. XXXVIII. figg. 4, 4 *a–d*, ♂; 5, 5 *a*, ♀.)

*Ero americana*, Tacz. Horæ Soc. Ent. Ross. x. p. 62 (♀) (1873) [1].

*Argyrodes americanus*, Keyserl. Spinn. Amer., Therid. i. p. 195, t. 9. figg. 117, 117 *a* (♀) [2]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 237 [3].

*Argyrodes argenteola*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 128, t. 16. figg. 4, 4 *a–d* (♂) [4].

*Argyrodes aurea*, O. P.-Cambr. loc. cit. pp. 207, 259, t. 26. figg. 1, 1 *a–c* (♀) [5], t. 39. figg. 4, 4 *a–e* (♂) [6].

Type, ♀, of *A. americanus*, in Coll. Univ. Warsaw, total length 2·7 millim.; of *A. argenteola*, ♂, in coll. Godman & Salvin, total length 2 millim.; of *A. aurea*, ♀ and androtype ♂, in coll. Godman & Salvin, total length, ♀ 2·5, ♂ 2·5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [4 5]), Tepic [3]; Guatemala (*Sarg* [6]).—South America, Cayenne [1 2], Amazons [2].

The type, ♀, of *A. aureus* is identical with an example of *A. americanus* in the Keyserling collection, and it also agrees with his above-quoted figures[2], made, presumably, from Taczanowski's type. The females labelled *A. argenteolus* by the Rev. O. P.-Cambridge, in the collection before me, also agree perfectly with the type of *A. aureus*. The type, ♂, of *A. argenteolus* is identical with the androtype, ♂, of *A. aureus*. There is no reason for supposing that these males and females are other than sexual complements of one species, or that Banks is correct in regarding *A. larvatus*, Keyserl., of which the type, ♂, is before me, as the sexual complement of *A. americanus*, Tacz. In any case, *A. larvatus*, ♂, is quite distinct from both *A. argenteolus* and *A. aureus*, ♂.

Our figures of the vulva of the female *A. americanus* are taken from the example in Keyserling's collection; those of the male are from the type of *A. aureus*.

### 4. **Argyrodes argenteo-maculatus.** (Tab. XXXVIII. figg. 6, 6 *a*, *b*, ♂.)

*Argyrodes argenteo-maculata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 193, t. 24. figg. 9, 9 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 2·5 millim.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith*[1]).

The palpal organs of this species are so similar to those of *A. americanus* that one can scarcely separate them. The abdomen is, however, distinctly different in form, but with so little material one cannot judge of the possible variability in this respect. I have therefore, for the present, treated these two forms as distinct.

### 5. **Argyrodes trigonus.** (Tab. XXXVIII. figg. 7, 7 *a*, *b*, ♂; 8, 8 *a*, *b*, ♀.)

*Theridium trigonum*, Hentz, Journ. Bost. Soc. Nat. Hist. vi. p. 280, t. 9. figg. 24 (♀), 25 (♂)[1]; Spid. U. S. (ed. Burgess), p. 152, t. 16. figg. 24 (♂), 25 (♀), t. 19. figg. 117, 131 (♀), t. 21. fig. 14 (♂)[2].

*Argyrodes argyrodes*, Keyserl. Spinn. Amer., Therid. i. p. 181, t. 8. figg. 109, 109 *a–c* (♂), 109 *d* (♀)[3].

*Argyrodes trigonum*, Emerton, Trans. Conn. Acad. Sci. vi. p. 23, t. 5. figg. 1, 1 *a*, 1 *b*, 1 *e* (♀), 1 *c*, 1 *d* (♂)[4].

*Argyrodes bicornis*, O. P.-Cambr. P. Z. S. 1880, p. 334, t. 29. fig. 12 (♂)[5].

Type ♂, gynetype ♀, of *A. trigonus*, Hentz, non-extant; of *A. bicornis*, ♂, O. P.-Cambr., in coll. O. P.-Cambr., total length 4·5 millim.

*Hab.* NORTH AMERICA, United States[1–4].—MEXICO, Omilteme in Guerrero (*H. H. Smith*).—BRAZIL, Parana[5].

Emerton was the first arachnologist to give a recognizable figure of the species which he regarded as *A. trigonus* (Hentz)—published in Burgess's edition of Hentz's 'Spiders,' and again in the 'New England Theridiidæ'—this having previously been confounded with *A. argyrodes* (Walck.) (Ins. Apt. ii. p. 282) by several authors. Keyserling, however, perceived that the species which he ascribed to *A. argyrodes*

(Walck.) was quite different from *A. epeiræ*, Simon, from Corsica, a form also usually treated as identical with *A. argyrodes*; but other writers made the mistake of regarding the North-American form as identical with *A. argyrodes*.

The type of the latter is, as Walckenaer himself says, in his own collection, though he is doubtful as to whether it came from "Algeria" or "Guadaloupe," and in his description he makes no mention of the bifurcate apex of the abdomen, so characteristic of *A. trigonus* (Hentz). Wherever it came from, Walckenaer's species is not *A. trigonus* (Hentz), and it is most probable that its real habitat was Algeria. Simon (Arachn. Fr. v. p. 16) has given the first really good description and figures of the species which he has identified as *A. argyrodes*, Walck., and one must accept his interpretation, in all probability a correct one. Thorell (Europ. Spid. p. 80) also asserts the identity of *A. argyrodes* with *A. epeiræ*, but on the strength of examples from Brazil.

We come to the conclusion, then, that *A. trigonus* (Hentz) and *A. argyrodes* (Walck.) are two quite different species, and I very much doubt if the latter has ever been taken in America at all; at any rate, there is no evidence to justify such an assumption. Figures of the essential characteristics of each of them are given on the Plate for the sake of comparison. In *A. argyrodes* the central eyes of both rows are situated high up on the posterior lobe of the ocular area, while the lateral pairs are far remote from the base of the fissure. In *A. trigonus*, on the other hand, the central eyes are situated quite at the *base* of the posterior lobe, and the lateral pairs lie closely adjacent. The palpal organs are also of quite distinct character in the two species: see Emerton's admirable figures, and also, for the eyes, that of Simon (Arachn. Fr. v. t. 25. fig. 3).

I have not seen the type of *A. bicornis*, O. P.-Cambr., from Brazil, but the figures of the eyes, and of the abdomen with its bifurcate apex (P. Z. S. 1880, t. 29. fig. 12), leave little room for doubt that this, too, is identical with *A. trigonus* (Hentz).

Keyserling's figures of the palpi of this genus are not sufficiently detailed to be of any great value, but fortunately his types and examples are before me. Our figures of *A. argyrodes* are from specimens taken in Spain and kindly furnished by M. E. Simon, and there are also examples of the same species in the Keyserling Collection from Lesina and Corsica, which I have examined in comparison.

### 6. **Argyrodes subdolus.** (Tab. XXXVIII. figg. 11, 11 *a*, ♀.)

*Argyrodes subdola*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 260, t. 39. figg. 2, 2 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 3·25 millim.

*Hab.* GUATEMALA, San Antonio (*Sarg*[1]).

### 7. **Argyrodes maculosus.** (Tab. XXXVIII. figg. 12, 12 *a*, ♂; 13, 13 *a*, *b*, ♀.)

*Argyrodes maculosa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 258, t. 37. figg. 3, 3 *a*, *b* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 2·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

In the form of the abdomen, especially of the three nipple-like prominences in the upper central posterior dorsal line, this species so closely resembles *A. felix*, O. P.-Cambr. (P. Z. S. 1880, p. 340, t. 30. fig. 19), from Parana, that I have little doubt the two are identical. Without seeing the types, however, and thus being able to compare the form of the vulva, one is not justified in regarding them as conspecific.

### 8. **Argyrodes jucundus.** (Tab. XXXVIII. figg. 14, 14 *a–c*, ♀.)

*Argyrodes jucunda*, O. P.-Cambr. P. Z. S. 1880, p. 326, t. 18. figg. 6, 6 *a–d* (♀) [1].

Type, ♀, in coll. O. P.-Cambridge. Total length 3·25 millim.

*Hab.* Guatemala (*Sarg*).—Brazil, Parana [1].

## RHOMPHÆA.

*Rhomphæa*, L. Koch, Arachn. Austral. p. 289 (1872).

Type *R. cometes*, L. Koch. Australia.

In this genus, which is scarcely separable from *Argyrodes*, the central posterior eyes are, in the typical species, wide apart and closely adjacent to the lateral posteriors, while in the typical *Argyrodes* the central posteriors are further from the laterals and closer together. I cannot feel confident that the characters drawn from the curvature of the posterior row of eyes are likely to be of much value. The colulus is present and very distinct (as in *Argyrodes*), as well as the tarsal comb on the fourth pair of legs.

The species occurring in the collection before me may be recognized as follows :—

*Females.*

A. Apex of abdomen bifurcate or with a short flagellum.
  1. Apex of abdomen terminating in a shallow bifurcation. Femur i. not more than half as long as the abdomen.
    *a*. Abdomen longer, more slender towards the apex, seen in profile. Vulva longer, more conical, less concave beneath . . . . . *furcata*, O. P.-Cambr.
    *b*. Abdomen shorter, less slender towards the apex, seen in profile. Vulva shorter, less conical, more rounded and more concave beneath . . . . . *bifissa*, nom. n.
  2. Apex of abdomen terminating in a small flagellum or bristle-like appendage. Femur i. as long as, or longer than, the abdomen . *projiciens*, O. P.-Cambr.

B. Apex of abdomen simple, conical . . . . . *procera*, O. P.-Cambr.

Note.—The male of *R. projiciens* alone occurs in the collection.

1. **Rhomphæa furcata.** (Tab. XXXVIII. figg. 15, 15 *a*, *b*, ♀.)

*Ariamnes furcata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 129, t. 17. figg. 10, 10 *a*, *b* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 5·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

The description and figures are drawn from an example which is probably not fully mature.

2. **Rhomphæa bifissa,** nom. n. (Tab. XXXVIII. figg. 16, 16 *a*, *b*, ♀.)

*Argyrodes furcata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 258, t. 39. figg. 3, 3 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 5·5 millim.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*[1]).

This species is closely allied to *R. furcata*, but stouter and with the vulva different in form (see Plate and Table). It belongs to the genus *Rhomphæa*, however, and not to *Argyrodes*, as at present characterized, so that the name *furcata*, being already occupied in the first-mentioned genus, must be changed.

3. **Rhomphæa projiciens.** (Tab. XXXVIII. figg. 17, 17 *a*, ♂; 18, ♀.)

*Rhomphæa projiciens*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 186, t. 23. figg. 9, 9 *a–d* (♂), 10, 10 *a*, *b* (♀)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 6, ♀ 8 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

4. **Rhomphæa procera.** (Tab. XXXVIII. figg. 19, 19 *a*, ♀.)

*Ariamnes procera*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 257, t. 38. figg. 5, 5 *a*, *b* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 3·25 millim.

*Hab.* Panama, Bugaba (*Champion*[1]).

## ARIAMNES.

*Ariamnes*, Thorell, Europ. Spid. pp. 37, 38 (1869) (nom. nov. for *Ariadne*, Doleschall, preoccupied in Lepidoptera, in 1829, by Horsfall).

Type *A. flagellum* (Doleschall). Dutch East Indies.

The spiders usually referred to this genus are very similar to those placed under *Rhomphæa*, except as regards the shape of the abdomen, sinuously vermiform in this case. The clypeus is normal, not projecting forwards nor higher than the width of the central eye-quadrangle, as it is in *Rhomphæa*. Tibia i. is shorter than the femur

and longer than the protarsus. A very minute colulus is present, and also the tarsal comb on the fourth pair of legs.

The two species occurring in the collection before me may be recognized as follows :—

*a*. Leg iv. longer than the abdomen . . . . . *gracillimus*, O. P.-Cambr.
*b*. Leg iv. shorter than the abdomen . . . . . *approximatus*, O. P.-Cambr.

### 1. **Ariamnes gracillimus.** (Tab. XXXVIII. figg. 20, 20 *a*, *b*, ♀.)

*Ariamnes gracillima*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 129, t. 17. figg. 9, 9 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 22·5 millim.

*Hab.* PANAMA, Los Remedios in Chiriqui (*Champion*[1]).

The length quoted for this and the next species is taken from the clypeus to the apex of the abdomen.

### 2. **Ariamnes approximatus.**

*Ariamnes approximata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 130, t. 17. figg. 8, 8 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 24·75 millim.

*Hab.* PANAMA, Bugaba in Chiriqui (*Champion*[1]).

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NOTE.—The type of the following genus, which belongs to the Theridiidæ, has come to hand since the preceding pages have been in type :—

## COLEOSOMA.

*Coleosoma*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 154 (1895).

Type *C. flavipes*, O. P.-Cambr. Central America.

This genus belongs to the group of stridulating Theridiidæ, and differs from all others of the family in having a large bifid plate on the anterior margin of the abdomen above the pedicle.

### 1. **Coleosoma flavipes.**

*Coleosoma flavipes*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 154, t. 19. figg. 12, 12 *a–d* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 2·25 millim.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith*[1]); GUATEMALA, Coban (*Sarg*[1]).

## Fam. MIMETIDÆ.

The genera here included in the family Mimetidæ differ from the Theridiidæ in having no row of serrate bristles beneath tarsus iv.; and from the Argyopidæ in having the tibiæ and protarsi i. and ii. furnished on the inner side with a series of widely separate, very long spines, the interspaces being set with a row of smaller curved spines, increasing in length distally.

### Subfam. *MIMETINÆ.*

The spiders belonging to this subfamily, including the well-known tropical genera *Galena*, C. L. Koch, and *Mimetus*, Hentz, and the European genus *Ero*, C. L. Koch, are most probably the remnants of some very ancient group of which the majority have died out. Their most conspicuous character lies in the relatively greater length of the first two pairs of legs, whose tibiæ and protarsi are furnished with a series of widely separate and very long spines, while the interspaces are set with a row of smaller, curved, and more closely situated spines, those of each row increasing in length distally. The mandibles in *Galena* and *Mimetus* are soldered together at the base and very simple in their armature. The colulus is present.

The three genera occurring in Central America may be distinguished as follows:—

#### Genera.

A. Sternum not produced between coxæ iv. Tibiæ and protarsi iii. and iv. spinose. Central anterior eyes less than half their diameter from the laterals and larger in proportion . . . . . Mimetus, Hentz.

B. Sternum produced between coxæ iv. Tibiæ and protarsi iii. and iv. almost entirely without spines. Central anterior eyes at least a full diameter from the laterals and smaller in proportion . . . . . Galena, C. L. Koch.

### MIMETUS.

*Mimetus*, Hentz, Amer. Journ. Sci. (1) xxi. p. 104 (1832).

Type *M. syllepsicus*, Hentz. North America.

The general characters of the spiders referred to *Mimetus* are very similar to those of *Galena*—the tibiæ and protarsi of the third and fourth pairs of legs being, however, clothed with long spines. The central anterior eyes are less than half their own diameter from the laterals, and are larger in proportion than is the case in *Galena*; the clypeus also being higher, slightly over one diameter of an anterior central eye. The sternum is not produced between coxæ iv., nor are the palpi in the male so long and slender as in *Galena*. Tarsal claws three; colulus present.

The species may be recognized as follows:—

*Males.*

A. Centre of bulb of palpus presenting two sharp apophyses only (see Tab. XXXIX., *a* & *b*).
  *a*. The upper apophysis (*a*) much longer and straight . . . . *bigibbosus*, O. P.-Cambr.
  *b*. The upper apophysis (*a*) much shorter, inconspicuous, and slightly curved . . . . . *crudelis*, O. P.-Cambr.

B. Centre of bulb of palpus presenting three sharp curved apophyses (see Tab. XXXIX., *a*, *b*, *c*) . . . . . *rapax*, O. P.-Cambr.

*Females.*

A. Carapace with a scalloped dark band down the middle. Vulval orifice transverse-oval, its upper margin not prolonged, emarginate in the middle . . . . . *rapax*.

B. Carapace unicolorous yellow. Vulval orifice with its upper margin prominent, prolonged, not emarginate in the middle . *trituberculatus*, O. P.-Cambr.

The type of *M. hirsutus* is in a shrunken condition, and its characters cannot properly be made out.

### 1. **Mimetus bigibbosus.** (Tab. XXXIX. figg. 1, 1 *a*, *b*, ♂.)

*Mimetus bigibbosus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 133, t. 18. figg. 12, 12 *a–d* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 3·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

### 2. **Mimetus crudelis.** (Tab. XXXIX. figg. 2, 2 *a*, ♂.)

*Mimetus crudelis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 297, t. 36. figg. 8, 8 *a–c* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* Guatemala (*Sarg*[1]).

### 3. **Mimetus rapax.** (Tab. XXXIX. figg. 3, 3 *a*, *b*, ♂.)

*Mimetus rapax*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 296, t. 36. figg. 6, 6 *a–d* (♂), 7, 7 *a* (♀)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3·75, ♀ 5·25 millim.

*Hab.* Panama, Bugaba (*Champion*[1]).

### 4. **Mimetus trituberculatus.** (Tab. XXXIX. figg. 4, 4 *a*, ♀.)

*Mimetus trituberculatus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 297, t. 36. figg. 5, 5 *a*, *b* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 3·75 millim.

*Hab.* Panama, Los Remedios in Chiriqui (*Champion*[1]).

### 5. **Mimetus hirsutus.**

*Mimetus hirsutus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 298, t. 36. figg. 9, 9 *a* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 2·5 millim.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*[1]).

The type of this species is partially dried and shrunken, and the bristles thus appear to be closely placed, giving it a very hirsute appearance. The abdomen of *M. tripubérculatus* is clothed with similar bristles, which are not, however, represented in the figure given in Vol. I. The vulva of *M. hirsutus* is not visible, and one cannot therefore judge of the value of the species.

## GALENA.

*Galena**, C. L. Koch, Die Arachn. xii. p. 105 (1845).

Type *G. zonata*, C. L. Koch (♂). ? Brazil.

Legs i. and ii. subequal, much longer than iii. and iv.; tibiæ and protarsi i. and ii. (the latter being strongly curved) furnished with long, widely separate spines, having a row of shorter, closely adjacent, curved spines between them, iii. and iv. with one or two spines only; femora of all four pairs closely spined. Carapace very convex above, central fovea circular, very deep. Central anterior eyes at least one full diameter from the laterals. Clypeus narrower than the anterior central eyes. Sternum produced into a long narrow plate between coxæ iv. Palpus of the male very long and slender. Tarsal claws three. Colulus present.

The females of the species here recognized may be distinguished thus:—

*Females.*

*a*. Carapace unicolorous, without broad yellow-brown central band.
  *a'*. Vulval area much larger, having a broad central tongue with a large cavity on each side; seen from above, it appears as a large, broad, triangular, chitinous area, with a pair of central adjacent shallow depressions . . . . . *mixta*, O. P.-Cambr.
  *b'*. Vulval area much smaller, without a cavity on each side. Seen from above, it appears as a small, central, pointed tongue, directed forwards, having on each side a very small cavity, with an orifice evident at the bottom of each . . . . . *consequa*, O. P.-Cambr.
*b*. Carapace with a broad yellow-brown central band . . . . . *distincta*, O. P.-Cambr.

### 1. **Galena mixta.** (Tab. XXXIX. figg. 5, 5 *a*, *b*, ♂; 6, 6 *a*–*e*, ♀.)

*Gelanor mixtus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 303 (♂ ♀)[1].

*Gelanor medius*, O. P.-Cambr. loc. cit. p. 304 (♂ ♀)[2].

Type ♂, gynetype ♀, of both *G. mixta* and *G. media*, in coll. Godman & Salvin. Total length of *G. mixta*, ♂ 5, ♀ 7·25 millim.

*Hab.* Guatemala, Menché, Chiacam (*Sarg*[1 2]); Panama, Bugaba (*Champion*[1]).

I cannot see in *G. media* (O. P.-Cambr.), ♀, anything more than an immature form

* *Galene*, not *Galena*, was preoccupied by de Haan in 1835.

of *G. mixta* (O. P.-Cambr.); nor can I recognize in the males of the two species any characters by which they can be separated. The male type of *G. mixta* is from Guatemala, the gynetype is from Panama.

2. **Galena consequa.** (Tab. XXXIX. figg. 7, 7 *a*, ♀.)

*Gelanor consequus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 306 (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Panama, Bugaba (*Champion*[1]).

This species bears a general resemblance to *G. mixta*, but it is smaller, and the form of the vulva is totally different. See Plate and Table.

3. **Galena distincta.** (Tab. XXXIX. figg. 8, 8 *a*, ♀.)

*Gelanor distinctus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 304 (♀)[1].

*Gelanor errans*, O. P.-Cambr. loc. cit. p. 305 (♂ ♀)[2].

Types, ♀, of both *G. distincta* and *G. errans* (immature), and androtype, ♂ (immature), of *G. errans*, in coll. Godman & Salvin. Total length of *G. distincta*, ♀, 5·75 millim.

*Hab.* Panama, Bugaba (*Champion*[1 2]).

I cannot find amongst the specimens referred to *G. errans* any adult males, but only two immature examples of that sex. The females referred to *G. errans* appear to me to be merely undeveloped examples of *G. distincta*.

## Fam. ARGYOPIDÆ.

The spiders here included in this family vary exceedingly in general appearance, as well as in habits. The best known will be the numerous spinners of the orb-web, the Epeiridæ of authors. The sheet-web spinners, the Linyphiinæ, may perhaps eventually be separated again into a distinct family, but one cannot for present purposes undertake a complete revision of the entire group.

As a whole, the members of the Argyopidæ may be distinguished from the Theridiidæ by the absence of any definite single series of serrated spines beneath tarsus iv. I have not, so far, found that this character breaks down; although in the Theridiosomatinæ the tarsi and the apical fourth of protarsus iv. exhibit a thick cluster of serrate bristles beneath, but they also possess the extra claw-like bristles especially noticeable in the Argyopinæ.

For general purposes, the numerous species included in this family which have been recorded from Central America may be grouped under the following subfamilies, and are recognizable by the characters given below:—

A. Tarsi and apical fourth of protarsus iv. clothed beneath with a cluster of serrated bristles. Legs, especially the tibiæ and protarsi i. and ii., furnished with long bristles and long, fine, silky hairs . . . . . Theridiosomatinæ.

B. Tarsi and protarsus iv. not so furnished. Legs clothed with spines and bristles, or bristles only, but not disposed in the same manner.

i. Spiders in both sexes exhibiting on the external side of the basal segment of the mandible a striate, cuspulate, or cuspulo-rugulose or cuspulo-striate area, correlating with one or more cusps or spines on the inner side and at the base of the femur of the palpus . . . . LINYPHIINÆ.

ii. Spiders not exhibiting these stridulating-organs.

$a^1$. Mandible with or without a rudimentary rounded boss on the outer side at the base.

$a^2$. Boss absent. Margins of fang-groove armed with numerous teeth . TETRAGNATHINÆ.

$b^2$. Boss rudimentary. Margins of fang-groove armed with few teeth . METINÆ.

$b^1$. Mandible with a distinct rounded boss on the outer side at the base.

* Legs relatively longer; protarsi and tarsi longer than patellæ and tibiæ.

1. Vulva of female simple; posterior row of eyes straight; carapace convex . . . . . NEPHILINÆ.

2. Vulva of female developed; posterior row of eyes strongly procurved; carapace flat . . . . . ARGYOPINÆ.

** Legs relatively shorter; protarsi and tarsi not longer than the patellæ and tibiæ.

$a^3$. Spinners free, not lying within a chitinous sheath . . . . . ARANEINÆ.

$b^3$. Spinners encircled by a short, cylindrical, chitinous sheath . . GASTERACANTHINÆ.

## Subfam. *THERIDIOSOMATINÆ.*

Central pair of spinners set longitudinally, parallel, between the posterior pair, together forming a straight transverse line; anterior pair much longer. Tarsi and apical fourth of protarsus iv. set beneath with numerous serrated bristles (but not with a single series of stout serrate spines, as in the Theridiidæ). Legs armed with long, slender bristles and long, fine, silky hairs, especially above the tibiæ and protarsi i. and ii.; the patellæ also with a long bristle at their apex above. Tarsal claws 3; supernumerary serrate spines (claws so-called) very distinct in *Theridiosoma* and *Epeirotypus*, less so in *Wendilgarda*. Colulus long and narrow.

The spiders included in this subfamily combine in general appearance the characters of the Theridiidæ and Argyopidæ; but the absence of a definite tarsal comb on the fourth pair of legs distinguishes them from the former, while the absence of spines on the legs separates them from the latter. The abdomen is more or less globular or angular-globose and the legs very short, longer in *Wendilgarda*.

The genera which are represented in Central America may be recognized as follows:—

### GENERA.

A. Legs relatively much shorter. Eyes more closely grouped.

*a*. Abdomen globular; central posterior eyes slightly closer to each other (one-quarter of a diameter apart, one-third from the laterals) than they are to the laterals . . . . . THERIDIOSOMA, O. P.-Cambr.

*b*. Abdomen angular; central posterior eyes much further from each other (one and a half diameters apart, one-third from the laterals) . . . . . EPEIROTYPUS, O. P.-Cambr.

B. Legs relatively much longer. Eyes more widely separated . . WENDILGARDA, Keyserl.

## THERIDIOSOMA.

*Theridiosoma*, O. P.-Cambridge, Ann. & Mag. Nat. Hist. (5) iv. p. 193 (1879).

Type *T. gemmosum* (L. Koch). Europe.

The type-species is much smaller than that of *Wendilgarda*; the legs are relatively shorter and the eyes more closely grouped. The abdomen is globular. The central posterior eyes are slightly larger than the laterals, and a little closer together, being one-fourth of a diameter apart and one-third of a diameter from the laterals. The colulus is present, and the posterior and central pairs of spinners are situated in the same transverse straight line. The supernumerary claws, so called, are quite distinct in members of this genus.

The two species occurring in the collection may be separated thus:—

*Females.*

*a*. Abdomen unicolorous dull orange. Posterior margin of vulva with a shallower ∧-shaped indentation in the middle . . . . . *concolor*, Keys.

*b*. Abdomen spotted with silver and black. Posterior margin of vulva more deeply indentate in the middle . . . . . *globosum*, O. P.-Cambr.

### 1. Theridiosoma concolor.

*Theridiosoma concolor*, Keyserl. Spinn. Amer. ii. p. 219, t. 10. figg. 133, 133 *a–c* (♀)[1].

Type, ♀, in coll. E. Simon. Total length 4 millim.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith*).—SOUTH AMERICA, Pebas, Amazons[1].

One cannot be quite certain, in the absence of the type, whether the examples before me are really identical with *T. concolor*, but it seems probable.

### 2. Theridiosoma globosum.

*Andrasta globosa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 192, t. 24. figg. 5, 5 *a–f* (♂), 6, 6 *a, b* (♀)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 2, ♀ 2·5 millim.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith*[1]).

This species may be identical with *T. argentatum*, Keyserl., described from an immature male; but even with the type before me it would be difficult to decide.

## EPEIROTYPUS.

*Epeirotypus*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 134 (1894).

Type *E. brevipes*, O. P.-Cambr. Central America.

The type-species differs from that of both *Theridiosoma* and *Wendilgarda* in having an angular abdomen, and

from the latter in having relatively much shorter legs and the eyes more closely grouped, while the central posteriors are much larger than the laterals and much further apart than they are from the laterals. The colulus is present, and the posterior pairs of spinners are situated in the same transverse straight line.

### 1. Epeirotypus brevipes.

*Epeirotypus brevipes*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 134, t. 18. figg. 11, 11 *a–d* (♀)[1]; loc. cit. p. 161, t. 19. figg. 14, 14 *a–e* (♂)[2].

Type ♀, androtype ♂, in coll. Godman & Salvin. Total length, ♀ 3·5, ♂ 2·75 millim.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith* [2]); GUATEMALA, Senahu (*Sarg* [1]).

## WENDILGARDA.

*Wendilgarda*, Keyserling, Spinn. Amer. ii. p. 129 (1886).

Type *W. mexicana*, Keyserl. Mexico.

The type-species of this genus is much larger than the typical *Theridiosoma*, and differs from it in having the legs considerably longer and the eyes more widely separated. The central quadrangle is scarcely longer than broad; the central posterior eyes are much closer together, one diameter apart, than to the laterals, two diameters from the latter and almost equal to them in size. The sternum is broadly convex between coxæ iv. The colulus is present, and the central and posterior pairs of spinners are in one and the same straight transverse line. The abdomen is globular.

### 1. Wendilgarda mexicana.

*Wendilgarda mexicana*, Keyserl. Spinn. Amer. ii. p. 130, t. 15. figg. 208, 208 *a–c* (♀)[1].

Type, ♀, in Mus. Brit. Total length 4·4 millim.

*Hab.* MEXICO (*Sallé* [1]); GUATEMALA (*Sarg*).

## Subfam. *LINYPHIINÆ*.

Since I am unable at present to find that any of the characters usually given for distinguishing the *Linyphia*-group from that including *Erigone*, *Walckenaeria*, &c. are reliable, the spiders comprised in these groups are left under the subfamily Linyphiinæ, distinguished from the other subfamilies of the Argyopidæ by the possession in both sexes of a more or less distinct organ of stridulation on the mandible.

The recognizable genera of the *Linyphia*-group may be distinguished by the characters noted below; those belonging to the *Erigone*-group I am unable to define without making a fuller study of all the numerous and very minute forms involved.

### GENERA.

I. Legs without lateral spines; with only a few spiniform hairs above. STHELOTA, Simon.

II. Legs with lateral spines, as well as those above.

A. Mandibles, in both sexes, with an indistinct granulo-rugulose, or granulo-striate, longitudinal band on the outer side; not simply striate. Central posterior eyes seated upon black tubercles and much larger than the centrals.

| | |
|---|---|
| 1. Stridulating-band of mandible granulo-rugulose . . . . . | Neriene, Blackw. |
| 2. Stridulating-band of mandible granulo-striate . . . . . | Florinda, O. P.-Cambr. |
| B. Mandibles, in both sexes, with a longitudinal band of distinct separate transverse striæ. | |
| *a*. Anterior lateral margin of carapace without fovea. Protarsi i. and ii. with one or more spines. | |
| *a*[1]. Eye-groups more widely separate. Sternum longer than broad . . . . . | Frontinella, gen. nov. |
| *b*[1]. Eye-groups more closely situated. Sternum not longer than broad . . . . . | Lepthyphantes, Menge. |
| *b*. Anterior lateral margin of carapace with a deep fovea. Protarsi i. and ii. without spines . . . . . | Bathyphantes, Menge. |

## STHELOTA.

*Sthelota,* E. Simon, Hist. Nat. Araign. 2nd edit. p. 704 (1894).

Type *S. albonotata* (Keyserling). Central America.

This genus belongs, according to Simon, to that group which has the legs less spinose than in the allied forms. It is allied to *Microneta*. A single species is recorded as occurring in Central America; and *Frontina phœnicea*, O. P.-Cambr., is placed in *Sthelota* for the present.

### 1. Sthelota albonotata.

*Linyphia albonotata,* Keyserling, Spinn. Amer., Therid. ii. p. 89, t. 14. figg. 183, 183 *a* (♀)[1].

Type, ♀, in coll. E. Simon. Total length 2 millim.

*Hab.* Panama, Isthmus of Darien[1].

### 2. Sthelota phœnicea.

*Frontina phœnicea,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 144, t. 17. figg. 1, 1 *a–f* (♂), 2, 2 *a* (♀)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 2·5, ♀ 2·75 millim.

*Hab.* Guatemala, Antigua (*Stoll*[1]).

This species is allied to *Microneta*. It differs from the type of *Sthelota* (to judge from M. Simon's diagnosis of the genus) in the relative position of the posterior eyes. The male is remarkable for the development of the tibia of the palpus, in which it resembles *Oreoneta rudis* (O. P.-Cambr.) and *Hilaira uncata* (O. P.-Cambr.).

## NERIENE.

*Neriene,* Blackwall, Lond. & Edinb. Phil. Mag. (3) iii. p. 187 (1833).

Type *N. marginata*, Blackw., = *clathrata* (Sund.). Europe.

Mandibles in both sexes with an indistinct cuspulo-striate or rugulose-cuspulate longitudinal band on the

outer side, correlated with four or five minute setigerous cusps on the inner side of the femur of the palpus. Eyes of posterior row very unequal, centrals larger, situated on large black tubercles. Patella of male palpus without apical cusps. Sternum elongate, produced behind between coxæ iv. Paracymbium of palpal bulb usually conspicuous, elongate-falciform.

The species here referred to *Neriene* were recognized as a separate group by Keyserling (Spinn. Amer., Therid. ii.), but described under the name of *Frontina*, whose type belongs to quite a different group.

They are closely allied to *Linyphia clathrata*, Sund., and if separated from that genus the name *Neriene* must be restored, with *N. clathrata* as the type. [*Cf.* Ann. & Mag. Nat. Hist. (7) ix. p. 9 (1902).]

### *Males.*

1. Bulb of palpus with a very long, conspicuous, spiraloid, curved embolus.
   - *a*. Carapace with a dark, central, longitudinal line. Bulb of palpus from inner side presenting a broad, flat, horny surface . . . . . *longispina*, sp. n.
   - *b*. Carapace without dark central line. Bulb not broad and flat.
     - $a^1$. Embolus of bulb terminating in two distinct fine points apically, its basal half lying in a chitinous sheath or conductor . . . . . *duplicata*, sp. n.
     - $b^1$. Embolus of bulb terminating in a single fine point apically, not two-fold; its basal half not lying in a sheath-like conductor . . . . *simplicata*, sp. n.

2. Bulb of palpus without very long conspicuous embolus.
   - 1 *a*. Abdomen black, with a few latero-dorsal white spots.
     - $a^2$. Bulb of palpus with three large hook-like spurs at its apex and a large spur at its base. Paracymbium of bulb conspicuous, falciform . . *trifalcata*, sp. n.
     - $b^2$. Bulb of palpus without the large spurs at its apex or the large spur at the base. Paracymbium inconspicuous . . . . . *gamma*, sp. n.
   - 1 *b*. Abdomen black, with a broad, continuous, latero-dorsal, white band . *bifasciata*, sp. n.

### *Females.*

A. Vulva with a central tongue-like piece or dividing septum.

1. Vulva exhibiting a central tongue-like piece, the orifice, however, not divided longitudinally by this piece to form a cavity on each side.
   - *a*. Tongue-like piece of vulva semicircular, transverse. . . . . *linguatula*, sp. n.
   - *b*. Tongue-like piece of vulva longitudinal, more or less wedge-shaped.
     - $a^1$. Base of tongue-like piece very narrow, without central groove or small transverse hood-like piece. . . . . *longispina*.
     - $b^1$. Base of tongue-like piece very broad, with a deep central groove and a small hood-like piece . . . . . *limbata*, sp. n.

2. Vulval orifice divided longitudinally by a variously formed tongue-like piece or chitinous septum, forming a cavity on each side.
   - $a^2$. Vulval orifice divided by a central tongue-like piece.
     - * Tongue-like piece without projecting ovipositor . . . . . *pallida*, sp. n.

** Tongue-like piece exhibiting beneath it a projecting ovipositor.
  $a^3$. Posterior margin of tongue-like piece deeply emarginate . . . *emarginata*, sp. n.
  $b^3$. Posterior margin of tongue-like piece convex, not emarginate . *convexa*, sp. n.
$b^2$. Vulval orifice divided longitudinally by a narrow, central, chitinous septum.
  $a^4$. Central septum deeply depressed in the middle . . . . . *lambda*, sp. n.
  $b^4$. Central septum uniformly convex . . . . . *nigrita*, sp. n.
B. Vulva forming a simple transverse orifice, without dividing tongue or septum . . . . . *bifasciata*.

### 1. **Neriene longispina**, sp. n. (Tab. XXXIX. figg. 9, 9 *a*, *b*, ♂; 10, 10 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ ♀, 5·5 millim.

*Female.* Carapace red-brown, broadly margined with dusky brown, with a fine central, longitudinal, dark line, dilate behind the eyes. Sternum black. Abdomen black dorsally, with a central, leaf-like, whity-brown pattern, deeply dentate posteriorly; lateral line almost entirely surrounded by a narrow white band, which is broken, however, in front and more broadly so behind, its posterior half on each side broken up into separate spots; ventral area dull black, with a faint dull white line on each side, extending from the spiracles almost to the spinners. Legs pale orange-yellow. Femora i. and ii. with two fine spines dorsally about the middle. Tibiæ and protarsi with dorsal, lateral, and ventral fine spines.

The *male* is more elongate and brighter in colour than the female. The central posterior eyes in both sexes are larger than the laterals and seated upon conspicuous black tubercles. The patella of the male-palpus has no apical cusp or spur. The mandibles and mouth-parts in both sexes are dull black.

*Hab.* Mexico, Omilteme (*H. H. Smith*).

### 2. **Neriene duplicata**, sp. n. (Tab. XXXIX. figg. 11, 11 *a–f*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

This species is similar in general pattern and colours to *N. longispina*, but the carapace has no marginal nor central dark band, the sternum, mandibles, and mouth-parts are red-brown, and the legs are pale yellow. For the characters furnished by the palpal organs, see Plate and Table.

*Hab.* Mexico, Orizaba (*H. H. Smith*); Guatemala (*Sarg*).

### 3. **Neriene simplicata**, sp. n. (Tab. XXXIX. figg. 12, 12 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

Carapace, legs, and mandibles pale orange, without central or marginal dark bands; sternum dusky brown; abdominal pattern and white lateral bar much more indistinct than in *N. longispina*. For more minute differential characters, see Table and Plate.

*Hab.* Guatemala, Coban (*Sarg*).

### 4. **Neriene trifalcata**, sp. n. (Tab. XXXIX. figg. 13, 13 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5·5 millim.

General characters similar to those of *N. longispina*, but the mandibles, mouth-parts, and sternum are paler, and the carapace has no marginal nor central dark bands, though there is a tendency towards a broad dusky marginal suffusion in some examples. For other differential characters, see Table and Plate.

*Hab.* Guatemala (*Sarg*).

### 5. **Neriene gamma,** sp. n. (Tab. XXXIX. figg. 14, 14 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

Carapace, mandibles, mouth-parts, and sternum deep brown, the former without central or marginal bands; legs pale yellow. Abdomen deep black, with a few lateral white spots. For other characters, see Table and Plate.

*Hab.* Guatemala, Coban (*Sarg*).

### 6. **Neriene pallida,** sp. n. (Tab. XXXIX. figg. 15, 15 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

General colour dull olive-brown, the normal markings on the abdomen very indistinct. Legs very pale yellow; no central nor lateral dark bands on the carapace. The single specimen received is probably not so dark as it would be if it were more mature. For vulva, see Table and Plate.

*Hab.* Guatemala, Coban (*Sarg*).

### 7. **Neriene emarginata,** sp. n. (Tab. XXXIX. fig. 16, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

General characters as in *N. longispina*, except that the central and marginal dark bands on the carapace are absent. The legs, especially iii. and iv., decidedly annulate; the femora of i. and ii. with a long dusky slash on the inner and outer sides, similar to that noticeable in the European *N. furtiva* (O. P.-Cambr.). For the vulva, see the Table and Plate.

*Hab.* Guatemala, Coban (*Sarg*).

### 8. **Neriene convexa,** sp. n. (Tab. XXXIX. figg. 17, 17 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

This spider is similar to *N. emarginata*, but in two examples the carapace is bright orange (instead of brown), and there are no dusky slashes on femora i. and ii. For the vulva, see Table and Plate.

*Hab.* Mexico, Atoyac (*H. H. Smith*).

Perhaps a variety of *N. emarginata*.

### 9. **Neriene lambda,** sp. n. (Tab. XXXIX. figg. 18, 18 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

Characters as in *N. longispina*, except that the general colour is dull olive-brown, while the carapace has a very broad, marginal, dusky suffusion. The mandibles, mouth-parts, and sternum are dull red-brown. For the vulva, see Table and Plate.

*Hab.* Guatemala, Coban (*Sarg*).

### 10. **Neriene nigrita,** sp. n. (Tab. XXXIX. figg. 19, 19 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

Very like *N. lambda*, but with the central septum of the vulva decidedly different in form (see Table and Plate).

*Hab.* Guatemala, Senahu (*Sarg*).

### 11. **Neriene bifasciata,** sp. n. (Tab. XXXIX. figg. 20, 20 *a*, ♂ ; 21, 21 *a*, *b*, ♀ .)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3, ♀ 4 millim.

For the palpus of the male and vulva of the female, see Table and Plate.

*Hab.* Costa Rica (*Rogers*).

### 12. **Neriene linguatula,** sp. n. (Tab. XXXIX. fig. 22, ♀ .)

Type, ♀, in coll. Godman & Salvin. Total length 3·75 millim.

General characters the same as in *N. lambda*, the coloration being variable, but differing in the form of the vulva (see Table and Plate).

*Hab.* Guatemala, Coban (*Sarg*).

### 13. **Neriene limbata,** sp. n. (Tab. XXXIX. fig. 23, ♀ .)

Type, ♀, in coll. Godman & Salvin. Total length 3·5 millim.

General characters similar to those of *N. longispina*, but with the leaf-like pattern on the abdomen not nearly so deeply dentate behind, and there is no central dark line on the carapace. In some examples, however, the carapace tends to be wholly suffused with dusky brown on the sides and posterior portion, while the cephalic region remains orange. For the vulva, see Table and Plate.

*Hab.* Mexico, Omilteme, Orizaba (*H. H. Smith*); Guatemala, Coban (*Sarg*).

## FLORINDA.

*Florinda,* O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 164 (1896).

Type *F. mirifica*, O. P.-Cambr. Mexico.

The species on which this genus was originally based is represented in the collection by a single example only, an adult male, of which the legs are nearly all wanting, so that it is difficult to know where to place it among the Linyphiinæ. For the time being, I place it next to *Neriene*.

### 1. **Florinda mirifica.**

*Florinda mirifica,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. 164, 224, t. 21. figg. 11, 11 *a–h* (♂) [1].

Type, ♂, in coll. Godman & Salvin. Total length 3·75 millim.

*Hab.* Mexico, Cuernavaca in Morelos (*H. H. Smith* [1]).

## FRONTINELLA, gen. nov.

Type *F. læta* (O. P.-Cambr.). Central America.

Mandibles in both sexes with a narrow, transversely and distinctly striate, longitudinal band on the outer side, not merely cuspulate or cuspulo-striate as in *Linyphia*, correlated with four or five minute setigerous cusps on the inner side of the femur of the palpus. Eyes of posterior row subequal; centrals nearer together than to the laterals, approximately one diameter apart. Sternum elongate, produced behind between coxæ iv. Patella of the palpus in the male sex bearing one or more cusps or cusp-like processes at the apex. Paracymbium of the palpal bulb small and inconspicuous. Colulus present.

The species here referred to this genus may be recognized by the characters given in the Table, and *Frontina calcarifera*, Keys., probably belongs to it. The species known to me may be tabulated thus:—

*Males.*

1. Mandibles with a small tooth on the outer anterior side towards the base of the basal segment.
   *a*. Patella of palpus with only one cusp-like process at its apex. Conductor of bulb divided into two curved branches apically, forming a long straight spur basally, its point extending backwards almost to the anterior margin of the tibia . . . . . *læta*, O. P.-Cambr.
   *b*. Patella of palpus with two cusp-like spurs at its apex. Conductor of bulb composed of a single branch apically, not produced basally . *bicuspis*, sp. n.
2. Mandibles without a small tooth on the outer anterior side.
   $a^1$. Patella and tibia of palpus of the same length approximately.
      $a^2$. Bulb of palpus furnished with a broad, flat, falciform conductor closely connected with a more slender falciform embolus; basally the bulb has no spur. Apex of tarsal sheath with three stout spines on the inner margin . . . . . *falculifera*, sp. n.
      $b^2$. Bulb of palpus furnished with a short canaliculate embolus; basally the bulb bears a short stout spur. Apex of tarsal sheath without spines . . . . . *uncata*, sp. n.
   $b^1$. Patella of palpus only half the length of the tibia . . . . . *tibialis*, sp. n.

*Females.*

1. Abdomen more conically produced behind, above the spinners.
   *a*. Abdomen narrower and more elongate; dull olive-brown, with four small white spots along the sides. Vulva not presenting a central dividing septum or black discs. Size much smaller . . . . . *uncata*.
   *b*. Abdomen broader, less elongate; black-brown, with two broad, white, longitudinal, lateral bands anteriorly and three or four transverse, oblique, lateral bands posteriorly. Vulva with a narrow, central, chitinous septum, having a round black disc on each side. Size much larger . . . . . *læta*.
2. Abdomen much less produced, conically, behind, above the spinners.
   $a^1$. Vulva with a broad, central, convex, tongue-like piece, without a central anterior groove. Coloration of abdomen as in *F. læta* . . *rustica*, sp. n.
   $b^1$. Vulva without a definite tongue-like piece, but with a deep central groove in the anterior half. Abdomen white dorsally, with a narrow, central, anterior, dark line and a black spot on the apex . . . . *confinis*, O. P.-Cambr.

1. **Frontinella læta.** (Tab. XL. figg. 1, 1 *a–e*, ♂ ; 2, 2 *a*, ♀ .)

*Linyphia læta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 261, t. 35. figg. 10, 10 *a–d* (♂), 11, 11 *a–d* (♀)[1].

Type ♀, androtype ♂, in coll. Godman & Salvin. Total length, ♀ 7·5, ♂ 5·5 millim.

*Hab.* Mexico, Amula and Omilteme in Guerrero (*H. H. Smith*[1]).

2. **Frontinella bicuspis,** sp. n. (Tab. XL. figg. 3, 3 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*).

This species is smaller than *F. læta*, and resembles it in having a small tooth at the base of the mandible; but may easily be distinguished by the possession of two short cusp-like spines at the apex of the patella of the palpus, while the palpal organs are much simpler (see Plate).

3. **Frontinella falculifera,** sp. n. (Tab. XL. figg. 4, 4 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* Costa Rica (*Rogers*).

Easily distinguishable by the two falciform processes lying on the palpal bulb. The patella of the palpus bears only one cusp at the apex, and there is no tooth at the base of the mandible.

4. **Frontinella uncata,** sp. n. (Tab. XL. figg. 5, 5 *a–c*, ♂; 6, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 4 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*); Guatemala, Cubilguitz (*Sarg*); Panama, Bugaba (*Champion*).

Recognizable by the form of the embolus and conductor of the male palpus and by that of the vulva in the female.

5. **Frontinella tibialis,** sp. n. (Tab. XL. figg. 7, 7 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*).

The form of the processes of the bulb of the palpus, as well as the much greater relative length of the tibia, will enable this species to be recognized.

6. **Frontinella communis.**

*Linyphia communis,* Hentz, Journ. Bost. Soc. Nat. Hist. vi. p. 28, t. 4. fig. 4 (♀)[1]; Spid. U.S. (ed. Burgess), p. 132, t. 15. fig. 4 (♀), t. 18. fig. 104 (♀), t. 19. fig. 118 (♀), t. 21. fig. 9 (♂)[2]; Emerton, Trans. Conn. Acad. Sci. vi. p. 62, t. 18. figg. 2, 2 *a*, *b*, *d*, *e* (♂), 2 *c*, 2 *f* (♀) (1882)[3]; Keyserl. Spinn. Amer., Therid. ii. p. 78, t. 13. figg. 175, 175 *a*, *b* (♀), 175 *c* (♂)[4]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 244[5].

*Hab.* North America[1–4].—Mexico, Hermosillo in Sonora (fide *Banks*[5]).

In dealing with *Linyphia communis*, Hentz, I here regard Emerton's identification of the species as correct. This author's figures show that the palpal organs resemble

those of the male of *F. læta*, but the spur on the patella is very different in shape. I can find no examples in the collection which one can confidently refer to this species as identified by Emerton.

### 7. **Frontinella rustica,** sp. n. (Tab. XL. fig. 8, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

This species closely resembles *F. læta* in general appearance. It is, however, much smaller, and not so much produced behind, above the spinners. For the vulva, see Table and Plate.

*Hab.* Mexico, Orizaba (*H. H. Smith*).

### 8. **Frontinella confinis.** (Tab. XL. fig. 9, ♀.)

*Linyphia confinis,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 306, t. 35. figg. 9, 9 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Guatemala (*Sarg*[1]).

## LEPTHYPHANTES.

*Lepthyphantes,* Menge, Preuss. Spinn. p. 131 (1866).

Type *L. muscicola,* Menge, = *L. minutus* (Blackw.). Europe.

The spiders belonging to this genus have a stridulating-organ on the mandible composed of a band of regular, definite, parallel striæ. The legs are more spinose than in *Tmeticus* and the allied genera; and there is always a protarsal spine and no cephalic fovea, as in *Bathyphantes.* A single species only has been recorded from Central America, *L. dubia*, O. P.-Cambr., belonging to another group of the Linyphiinæ.

### 1. **Lepthyphantes longispinosa.**

*Leptyphantes longispinosa,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 188, t. 23. figg. 8, 8 *a–f* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 3 millim.

*Hab.* Guatemala, Coban (*Sarg*[1]).

## BATHYPHANTES.

*Bathyphantes,* Menge, Preuss. Spinn. p. 111 (1866).

Type *B. longipes,* Menge = *B. parvula* (Westr.). Europe.

The spiders belonging to this genus have no spines on the anterior protarsus, and in the typical species they have, in both sexes, a deep fovea on the anterior lateral margin of the carapace. The mandibles are simply striate on the outer side. A single species only occurs in the collection before me. *B. tragica,* Marx, is unknown to me.

### 1. **Bathyphantes sana.**

*Bathyphantes sana*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 262, t. 39. figg. 4, 4 *a–e* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 2·5 millim.

*Hab.* Guatemala, Choctum (*Sarg* [1]).

### 2. **Bathyphantes tragica.**

*Bathyphantes tragica*, Marx, Proc. Calif. Acad. Sci. (3) i. p. 245, t. 14. fig. 17 (♀)[1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 2·3 millim.

*Hab.* Mexico, Guaymas, San Miguel de Horcasitas [1].

Note.—The following species belong to genera which at present I am unable to classify satisfactorily, and cannot do so without an exhaustive study of the whole group. The characters usually given by authors for distinguishing the Erigoninæ from the Linyphiinæ, viz. the hairs and spines on the legs, and the possession or otherwise of an apophysis on the tibiæ of the male palpus, or of a tarsal claw on the female palpus, are not reliable, so far as I can judge from the genera and species examined. They may, and probably will, prove to be of value when the whole classification has been revised.

## ERIGONE.

*Erigone*, Audouin in Savigny's Descr. de l'Égypte, ed. 2, xxii. p. 319 (1825–27).

Type *E. vagans*, Aud. in Sav. Egypt.

### 1. **Erigone dentosa.**

*Erigone dentosa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 128, t. 16. figg. 1, 1 *a–d* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 2·5 millim.

*Hab.* Guatemala, Antigua (*Sarg* [1]).

### 2. **Erigone bimaculata.**

*Erigone bimaculata*, Keyserl. Spinn. Amer. ii. p. 221, t. 19. figg. 278, 278 *a* (♂)[1].

Type, ♂, in coll. E. Simon. Total length 3·6 millim.

*Hab.* Panama, Isthmus of Darien (*Simon* [1]).

### 3. **Erigone purpurea.**

*Erigone purpurea*, Keyserl. Spinn. Amer. i. p. 218, t. 19. figg. 275, 275 *a* (♀)[1].

Type, ♀, in Mus. Brit. Total length 3 millim.

*Hab.* Mexico (*Simon* [1]).

## MERMESSUS.

*Mermessus*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 291 (1899).

Type *M. dentiger*, O. P.-Cambr. Guatemala.

### 1. **Mermessus dentiger.**

*Mermessus dentiger*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 292, t. 39. figg. 5, 5 *a–d* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 2·25 millim.

*Hab.* GUATEMALA (*Sarg*[1]).

## HUBBA.

*Hubba*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 231 (1897).

Type *H. insignis*, O. P.-Cambr. Guatemala.

### 1. **Hubba insignis.**

*Hubba insignis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 231, t. 30. figg. 4, 4 *a–c* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 1·5 millim.

*Hab.* GUATEMALA, Senahu (*Sarg*[1]).

## KULCZYNSKIELLUM.

*Kulczynskiellum*, F. P.-Cambridge, Midland Naturalist, 1895, p. 39.

Type *K. fuscum* (Blackw.). Europe.

### 1. **Kulczynskiellum dubium.**

*Leptyphantes dubia*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 262, t. 39. figg. 8, 8 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 2·25 millim.

*Hab.* GUATEMALA, Coban (*Sarg*[1]).

This minute spider probably belongs to the group of which *Kulczynskiellum fuscum* (Blackw.) is typical.

## GRAMMONOTA.

*Grammonota*, Emerton, Trans. Conn. Acad. Sci. vi. p. 38 (1882).

Type *G. pictilis* (O. P.-Cambr.). N. America.

### 1. **Grammonota nigriceps.**

*Grammonota nigriceps*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 241, t. 14. fig. 16 (♀)[1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 2·4 millim.

*Hab.* MEXICO, Tepic[1].

Mr. Banks says: "Possibly not of this genus."

## ACARTAUCHENIUS.

*Acartauchenius*, E. Simon, Arachn. Fr. v. p. 740 (1884).

Type *A. scurrillis* (O. P.-Cambr.). Europe.

### 1. Acartauchenius insanus.

*Acartauchenius insanus*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 242, t. 14. fig. 12 (♂ ♀) [1].

Type ♂, gynetype ♀, in coll. Calif. Acad. Sci. Total length, ♂ 2·4, ♀ 3 millim.

*Hab.* Mexico, San Miguel de Horcasitas [1].

## TMETICUS.

*Tmeticus*, Menge, Preuss. Spinn. p. 184 (1868).

Type *T. leptocaulis*, Menge, = *T. affinis* (Blackw.). Europe.

### 1. Tmeticus tridentatus.

*Tmeticus tridentatus*, Emerton, Trans. Conn. Acad. Sci. vi. p. 53, t. 15. figg. 2, 2 *a* (♂), 2 *b* (♀) [1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 242 [2].

Type ♂, gynetype ♀, in coll. Emerton. Total length, ♂ ♀, 2 millim.

*Hab.* North America, Connecticut [1].—Mexico, Tepic [2].

### 2. Tmeticus incertus.

*Tmeticus incertus*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 242, t. 14. fig. 28 (♀) [1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 2·2 millim.

*Hab.* Mexico, Tepic [1].

### 3. Tmeticus denticulatus.

*Tmeticus denticulatus*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 243, t. 14. fig. 29 [1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 2·5 millim.

*Hab.* Mexico, Tepic [1].

## POCOBLETUS.

*Pocobletus*, E. Simon, Hist. Nat. Araign. (2) i. p. 705 (1894).

Type *P. coroniger*, E. Simon. Venezuela.

### 1. Pocobletus mexicanus.

*Pocobletus mexicanus*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 243, t. 14. fig. 18 (♀) [1].

Type, ♀, in coll. Calif. Acad. Sci. Total length 2·8 millim.

*Hab.* Mexico, Tepic, Agua Caliente [1].

## CERATINOPSIS.

*Ceratinopsis*, Emerton, Trans. Conn. Acad. Sci. vi. p. 36 (1882).

Type *C. interpres* (O. P.-Cambr.). North America.

### 1. Ceratinopsis pergrata.

*Itys pergrata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 127, t. 16. figg. 12, 12 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 2·25 millim.

*Hab.* GUATEMALA, Coban (*Sarg*[1]).

This spider belongs, so far as one can judge from Emerton's figures, to the genus *Ceratinopsis*. The examples in the collection identified as *Erigone montividensis*, Keys., belong to the same species.

## Subfam. *TETRAGNATHINÆ*.

The spiders comprised in this subfamily are closely allied to the Metinæ, differing, however, from them in the absence of a basal boss on the mandible. The abdomen is elongate, and the web much resembles that of *Meta* and its allies. The two genera represented in Central America may be recognized by the following characters:—

1. Lateral eyes not in contact, not seated on a prominence. Femur ii. of the male without a specialized spine at the apex on the outer side. Protarsi i. and ii. of the male without spinules beneath. Femur i. without short spines in front towards the base . . . . . TETRAGNATHA, Latr.
2. Lateral eyes in contact, seated on a prominence. Femur ii. of the male with a conspicuous spine at the apex on the outer side, specialized to meet an angle on patella ii. Protarsi i. and ii. of the male with spinules beneath. Femur i. with a row of short spines in front towards the base . . . . . AGRIOGNATHA, O. P.-[Cambr.

### TETRAGNATHA.

*Tetragnatha*, Latreille, Nouv. Dict. d'Hist. Nat. xxiv. p. 135 (1804).

Type *T. extensa* (Linn.). Europe.

The species usually referred to this genus may be recognized in a general way by their elongate bodies and in their habit of crouching on a grass-stem or in the centre of their orb-web, with legs stretched out straight. From the spiders belonging to the group of which *Meta* is typical they may be known by the absence of the basal boss on the outer side of the mandible at its base, as well as by the more numerous teeth on the mandible. They differ from *Agriognatha* (=*Cyrtognatha*, Keyserl.) by the separation of the lateral eyes. In the male sex there are other important differences: see under *Agriognatha*, infra.

*Males.*

A. Mandibles with one very long conspicuous tooth, on the upper margin of the fang-groove, at about the apical third or fourth (*a* in figures).

* Legs armed with stout spines, as well as fine hairs.

*a*. The conductor of the embolus of palpus not geniculate at or towards the apex, nor dilate at the apex itself, simple, subaculeate . . . . . *tropica*, O. P.-Cambr.

*b*. The conductor of the embolus of palpus geniculate towards the apical third, or at the apex itself; dilated to form a more or less spoon-like cavity.

*a*$^1$. Lateral eyes adjacent, their black circumferences being in contact. The conductor of the embolus exhibiting at its base two inconspicuous spiraloid lobes (see *b* in figures).

*a*$^2$. Apex of cymbium of palpus vermiform, strongly curved, and attenuate. Conductor of the embolus geniculate from the apical third. Fang of mandible with a more or less distinct cusp on the dorsal side towards its base . . . . . *guatemalensis*, O. P.-Cambr.

*b*$^2$. Apex of cymbium of palpus rounded, not attenuate, and vermiform. Conductor of the embolus geniculate at the apex only. Fang of mandible without a dorsal basal cusp . . . . . *dentigera*, sp. n.

*b*$^1$. Lateral eyes widely separate; the black circumferences themselves at least one diameter of the posterior lateral eye-tubercle apart. The conductor of the embolus exhibiting at its base a single conspicuous spiraloid lobe (see *b* in figure) . . . . . *alba*, sp. n.

** Legs not armed with spines, but clothed with fine hairs only . *tenuissima*, O. P.-Cambr.

B. Mandibles not exhibiting one very long conspicuous tooth on the upper margin at the apical third or fourth.

*a**. Fang of mandible with a small, but distinct, cusp on the inner margin beneath, towards its base.

*a*$^3$. Embolus of palpus straight to its apex; the conductor forming at its base a concave spiraloid channel. The tuba, or basal part of the embolus, making a much wider loop over the bulb behind . . . . . *tenuis*, O. P.-Cambr.

*b*$^3$. Embolus of palpus sinuous to its apex; the conductor open to its base, not forming a spiraloid channel. The tuba making a much narrower loop over the bulb behind . . *cognata*, O. P.-Cambr.

*b**. Fang of mandible without cusp on the inner margin beneath towards its base.

† Tibia of palpus not less than one-half the length of the tarsus.

*a*$^4$. Apex of basal segment of mandible above with two large curved teeth, directed forwards and downwards, situated close to the dorsal spur. Apex of cymbium of palpus distinctly bifid . . . . . *antillana*, Simon.

*b*⁴. Apex of basal segment of mandible above with a single tooth, or two small teeth only, close to the dorsal spur. Apex of cymbium of palpus not bifid.

1. Conductor of palpus geniculate at the apex. The spines on tibiæ i. and ii., at most, twice as long as the diameter of the segment.

*a*⁵. Conductor forming at its apex a concave spoon, with a narrow sinuous neck, and aculeate at the point; its base forming two ill-defined spiraloid lobes. Apex of basal segment of mandible with two teeth near the dorsal spur . . . . . *bidens*, sp. n.

*b*⁵. Conductor not forming a hollow spoon, but simply abruptly curved at its apex; its base forming four distinct spiraloid lobes, like the threads of a screw. Apex of basal segment of mandible with a single tooth only near the dorsal spur . . . . . *mexicana*, Keys.

2. Conductor of palpus not geniculate at its apex. The spines on tibiæ i. and ii. from three to five times the diameter of the segment.

*a*⁶. Tibia of palpus equal in length to the tarsus. Apical portion of the tarsus scarcely longer than the basal portion, measuring from the base of the tarsus to the anterior margin of the bulb . . . . . *gracilis*, O. P.-Cambr.

*b*⁶. Tibia of palpus one-half the length of the tarsus. Apical portion of the tarsus at least twice the length of the basal portion, measured as above . . . . *pallida*, O. P.-Cambr.

†† Tibia of palpus not more than one-fifth the length of the tarsus . . . . . *digitata*, O. P.-Cambr.

## *Females.*

A. Abdomen more or less distinctly gibbous above anteriorly, viewed in profile.

i. Fang of mandible with a more or less well-developed spur on the dorsal side towards the base.

*a*. Apex of basal segment of mandible beneath bearing a large tooth and a smaller adjacent tooth, the latter situated between the former and the base of the fang. Upper margin of fang-groove with two teeth at the apex and a remote series of ten small teeth . . . . . *tropica*.

*b*. Apex of basal segment of mandible beneath without the smaller tooth. Upper margin of fang-groove with a single long tooth at the apex and a remote series of six smaller teeth . . . . . *guatemalensis*.

ii. Fang of mandible without a spur on the dorsal side towards the base.

$a^1$. Apex of basal segment of mandible with a long stout spur on the underside, directed straight forwards . . . . . *antillana.*

$b^1$. Apex of basal segment of mandible without spur on the underside.

$a^2$. Lower margin of fang-groove with seven teeth, the first further (more than its own length distant) from the second than the second is from the third . . . . . *cognata.*

$b^2$. Lower margin of fang-groove with six teeth, the first a little further (less than its own length distant) from the second than the latter is from the third . . . . . *digitata.*

B. Abdomen sometimes a little enlarged, but not gibbous above, viewed in profile; elongate, parallel-sided.

1. Legs clothed with fine hairs only, without spines. Fang of mandible with a conspicuous curved cusp on the dorsal margin towards the base . . . . . *tenuissima.*

2. Legs bearing spines, as well as fine hairs. Fang of mandible without cusp, or with a very minute one (*g* in figures), on the dorsal basal margin.

* The spines towards the base of tibiæ i. and ii. not more than twice the diameter of the segment.

$a^3$. Abdomen not more than three to four times longer than broad. Fang of mandible with a minute cusp on the dorsal basal margin . . . . . *alba.*

$b^3$. Abdomen at least six times longer than broad. Fang of mandible without cusp.

$a^4$. Lateral eye-tubercles almost in contact. Upper margin of fang-groove with 6 teeth . . . . . *tenuis.*

$b^4$. Lateral eye-tubercles separated by one-half a diameter of the posterior tubercle. Upper margin of fang-groove with 5 teeth . . . . . *mexicana.*

** The spines towards the base of tibiæ i. and ii. three to five times the diameter of the segment.

$a^5$. Basal segment of mandible with 7—7 teeth on upper and lower margin of fang-groove respectively. Spines at base of tibiæ i. and ii. shorter, three times the width of the segment . . . . . *pallida.*

$b^5$. Basal segment of mandible with 10—10 teeth on upper and lower margin of the fang-groove respectively. Spines at base of tibiæ i. and ii. longer, five times the width of the segment . . . . . *gracilis.*

Note.—The following species are unknown to me:—*T. mandibulata*, Walck., *T. banksi*, F. P.-C. (nom. nov.), *T. orizaba*, Banks, and *T. pallescens*, F. P.-C (nom. nov.), and their characters cannot therefore be given in the Table.

## 1. **Tetragnatha tropica.** (Tab. XL. figg. 10, 10 *a–d*, ♂; 11, 11 *a*, ♀.)

*Tetragnatha tropica*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 11, t. 2. figg. 3, 3 *a*, *b* (♀)[1].

Type ♀, deuterotype ♂, in coll. Godman & Salvin. Total length, ♀ 12·5, ♂ 7 millim.

Black eye-tubercles of the lateral eyes usually in contact, sometimes united only by a fine black line, rarely quite separate. Legs rather densely clothed with fine, erect, and some oblique, hairs, as well as with numerous spines, those on tibiæ i. and ii. being about three times the diameter of the segment. The mandibles of the male present the "*long tooth*" on the upper margin of the fang-groove, and two adjacent teeth, a large and a small, at the apex beneath.

♀. Abdomen distinctly gibbous above anteriorly; fang armed with a short curved cusp at its base, on the dorsal side; the base of the mandible armed beneath with two teeth at the apex, and a series of ten teeth; above with one large and one small tooth at the apex, and ten small teeth, the first of these being at least four times its own length from the apical teeth.

*Hab.* MEXICO, Atlixco (*Godman*), Orizaba, Tepetlapa, Cuernavaca (*H. H. Smith*); GUATEMALA, Menché (*Sarg* [1]).

## 2. **Tetragnatha guatemalensis.** (Tab. XL. figg. 12, 12 *a–f*, ♂; 13, ♀.)

*Tetragnatha guatemalensis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 8, t. 2. figg. 6, 6 *a–d* (♂), 7, 7 *a*, *b* (♀)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 7–9, ♀ 8–11·5 millim.

Lateral eye-tubercles in contact. Legs clothed with fine, erect, and oblique hairs, as well as spines. Fang of mandible with a more or less conspicuous, dorsal, basal, marginal cusp; basal segment of mandible with the "*large tooth*" conspicuous; a single small tooth beneath the "*dorsal spur*" near the apex, and another longer one still lower down, with a series of six or seven small teeth posteriorly; the lower margin exhibits a small group of three teeth at the apex, the central one the longest, and a series of five teeth posteriorly. The tibia of the palpus is one-fourth longer than the patella; the cymbium attenuate and curved at its apex, vermiform; the conductor strongly geniculate in the apical third, folded over on the inner margin and spoon-like at the apex; the embolus shorter, not reaching the apex of the conductor.

♀. Abdomen distinctly gibbous anteriorly; the fang of the mandible having a dorsal, basal, marginal cusp; the upper margin of the fang-groove with one long tooth towards the apex and a remote series of six fine subequidistant teeth; the lower margin with a small tooth at the apex and a remote series of seven or eight small subequidistant teeth, the first pair sometimes coalescent.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, Cahabon, Coban (*Sarg*, *Champion* [1]).

## 3. **Tetragnatha dentigera,** sp. n. (Tab. XL. figg. 14, 14 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6·5 millim.

Lateral eye-tubercles in contact. Legs clothed with spines and fine hairs. The upper margin of the fang-groove of the mandible exhibits the "*large tooth*," two smaller teeth on the apical side of it, that nearest to the large one being very broad and conspicuous, and six small teeth on the basal side; the lower margin bears two teeth anteriorly at the apex, and eight very minute teeth posteriorly. The conductor of the palpus is dilate at the apex (see figures); the tibia of the palpus twice as long as the patella; the cymbium neither bifid nor vermiform.

*Hab.* MEXICO, Teapa (*H. H. Smith*).

### 4. **Tetragnatha alba,** sp. n. (Tab. XL. figg. 15, 15 *a–d*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 7, ♀ 10 millim.

Lateral eye-tubercles well separate, one diameter of the posterior lateral eye-tubercle apart. The legs are moderately densely clothed with fine, erect, and oblique hairs and comparatively short spines. In the male the mandible exhibits the "*large tooth*" on the upper margin of the fang-groove, with anteriorly one small adjacent tooth and a smaller one at the apex, and posteriorly five smaller teeth; on the lower margin are eight small teeth. The conductor of the palpus is geniculate and slightly spoon-like at the apex; the tibia and patella equal in length; the cymbium not bifid at its apex.

♀. Abdomen slightly larger anteriorly, but not gibbous above; fang of the mandible bearing a minute cusp at its base on the dorsal side. Body and legs yellow, the latter not annulated; the abdomen dorsally covered with silver-white spangles, ventrally dark brown, with two longitudinal, parallel, white lines, the intermediate space between them being black. The upper margin of the fang-groove with a single larger and broader tooth at the apex, followed by a more remote group of five smaller equidistant teeth; the lower margin bearing a small tooth at the apex, with a more remote group of four or five smaller equidistant teeth.

*Hab.* MEXICO, Orizaba, Cuernavaca, Amula, Omilteme (*H. H. Smith*); GUATEMALA, Cubilguitz, Coban, Chilasco (*Sarg*); COSTA RICA (*Sarg*, *Tristan*, *Rogers*); PANAMA, Bugaba (*Champion*).

This species is closely allied to *T. straminea*, Emerton.

### 5. **Tetragnatha tenuissima.** (Tab. XL. figg. 16, 16 *a–c*, ♂; 17, 17 *a–c*, ♀.)

*Tetragnatha tenuissima*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 9, t. 3. figg. 1, 1 *a–d* (♂), 2, 2 *a*, *b* (♀)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 8·5, ♀ 11·5 millim.

Lateral eye-tubercles in contact. Legs clothed with fine oblique hairs only; no spines. Fang of mandible in the male without cusp on the dorsal basal margin, very long, sinuous, and indented in the middle. Upper margin of the fang-groove with the "*large tooth*" very conspicuous and long; two large curved teeth close to the apex, and two minute cusps in front of and beneath the "*dorsal spur*," and a series of four equidistant small teeth posteriorly; the lower margin bears nine or ten teeth, the first being the largest and situated at the apex of the segment. The tibia of the palpus is shorter than the patella; the conductor concave, somewhat spiraloid, and finely attenuate at its apex, the embolus being straight and filiform at the tip; the cymbium not bifid at the apex.

♀. Abdomen scarcely enlarged anteriorly, and not gibbous, covered with silvery-yellow spangles dorsally and laterally, dull yellow throughout the ventral area; otherwise the body and legs are yellow or yellow-brown. Mandible very large and divergent; the fang long, sinuous, with a conspicuous cusp on the dorsal basal margin (less distinct in immature specimens), deeply indented at the middle inner margin; the fang-groove bearing on the upper margin two more adjacent teeth towards the apex, the second being the longest, and a remote series of fine, long, adjacent, equidistant teeth posteriorly; on the lower margin are eight or nine teeth.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith*); GUATEMALA, Coban, Tamahu (*Sarg*); COSTA RICA (*Rogers*); PANAMA, Bugaba (*Champion*[1]).

### 6. **Tetragnatha tenuis.** (Tab. XLI. figg. 1, 1 *a–c*, ♂; 2, ♀.)

*Tetragnatha tenuis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 8, t. 1. figg. 12, 12 *a*, *b* (♀), 13, 13 *a–d* (♂)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 8, ♀ 9 millim.

Lateral eye-tubercles in contact or nearly so. Legs clothed with fine hairs and spines. The fang of the mandible in the male has a small cusp on the inner margin near the base. The "*large tooth*" is not

present, but there is a series of seven teeth graduated in size, the first being much the longest, on the upper margin of the fang-groove, with five small teeth on the lower margin. The tibia of the palpus is one-fourth longer than the patella, the conductor not dilate at its apex, and the embolus straight, except at its base, where it forms a wide loop; the cymbium is not bifid at its apex.

♀. Abdomen long, of uniform width, not gibbous anteriorly. The mandible with 6—6 small teeth on each margin of the fang-groove; the fang itself not bearing a dorsal cusp towards its base. The body dull yellow-white, the dorsal and lateral areas of the abdomen spangled with silver-white; ventrally the abdomen is dull white-brown throughout its length.

*Hab.* GUATEMALA, Cahabon (*Sarg* [1]); PANAMA, Bugaba (*Champion* [1]).

### 7. **Tetragnatha cognata.** (Tab. XLI. figg. 3, 3 *a–c*, ♂; 4, ♀.)

*Tetragnatha cognata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 7, t. 2. figg. 10, 10 *a–d* (♂), 11, 11 *a, b* (♀) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4·5, ♀ 9 millim.

Lateral eye-tubercles in contact. Legs clothed with fine hairs and short spines. The fang of the mandible in the male has a small cusp on the inner margin near the base. The "*large tooth*" is not present, but there is a series of six teeth on the upper margin of the fang-groove, the second in the series being the largest; the lower margin bears a series of six irregular teeth. The tibia of the palpus is only slightly longer than the patella; the conductor is broad throughout, not dilate apically, the embolus sinuous, forming a small loop basally; the cymbium is not bifid at its apex.

♀. Abdomen distinctly gibbous anteriorly; the upper and lower margins of the fang-groove bearing 7—7 teeth respectively; the fang without a dorsal, basal, marginal cusp.

*Hab.* GUATEMALA (*Sarg* [1]).

### 8. **Tetragnatha antillana.** (Tab. XLI. figg. 5, 5 *a–c*, ♂; 6, 6 *a*, ♀.)

*Tetragnatha antillana*, Simon, P. Z. S. 1897, p. 868 [1].

Type ♂, gynetype ♀, in Mus. Brit. Total length, ♂ 12, ♀ 15 millim.

Lateral eye-tubercles usually united by a fine black line; the eyes themselves one and a half diameters of a lateral posterior eye apart. Legs clothed with fine, erect, and oblique hairs and short spines. The mandible of the male has no "*large tooth*," but two long curved teeth at the apex form with the "*dorsal spur*" a conspicuous group of three rather hook-like teeth; besides these the upper margin of the fang-groove bears a very small tooth near the large pair, and a more remote group of seven small teeth; the lower margin bears a series of nine small teeth. The fang itself bears no basal cusp dorsally or beneath, but there is a sharp angle on the inner margin just opposite the third tooth of the upper margin. The conductor of the palpus is not geniculate, nor markedly dilate, the embolus being sinuous; the cymbium (the larger detached portion of the tarsal sheath) is distinctly bifid at its apex. The tibia of the palpus is twice as long as the patella.

♀. Abdomen gibbous anteriorly; the mandible differs from that of all other species of the genus at present recorded by the stout sinuous spur at the apex beneath; a small tooth lies adjacent to it, and there is a more remote series of eleven small teeth; the upper margin shows a long slender tooth at the apex, a smaller adjacent tooth, and a more remote series of ten very small teeth.

*Hab.* MEXICO, Teapa, Atoyac (*H. H. Smith*), Misantla (*Godman*); GUATEMALA; COSTA RICA (*Sarg*).—ANTILLES, St. Vincent [1].

### 9. **Tetragnatha bidens,** sp. n. (Tab. XLI. figg. 7, 7 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 9 millim.

Lateral eye-tubercles well separate, nearly twice the diameter of the posterior eye-tubercle apart. Legs clothed with both spines and fine, erect, oblique hairs. Fang of mandible without cusps; upper margin of basal segment with two small teeth near the apex and a remote group of six small teeth; the "*large tooth*" is absent; the lower margin bears at the apex two conspicuous teeth, the second by far the largest, and a series of five small teeth. The tibia of the palpus is about one-fourth longer than the patella; the conductor is geniculate and spoon-like at its apex; the cymbium is not bifid at the apex.

*Hab.* MEXICO, Orizaba, Vera Cruz (*H. H. Smith*).

### 10. **Tetragnatha mexicana.** (Tab. XLI. figg. 8, 8 *a–d*, ♂; 9, ♀.)

*Tetragnatha mexicana*, Keyserl. Verh. zool.-bot. Ges. Wien, xv. p. 854, t. 21. fig. 18 (♀) (1865)[1].

*Tetragnatha longa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 9, t. 2. figg. 4, 4 *a–d* (♂), 5, 5 *a*, *b* (♀)[2].

Type, ♀, in Mus. Brit; deuterotype, ♂, in coll. Godman & Salvin. Total length, ♀ 10·3, ♂ 9 millim.

Lateral eye-tubercles separated by one-half a diameter of the posterior tubercle, the eyes themselves by one and a quarter diameters of a posterior-lateral eye. Legs clothed with fine hairs and spines. Fang of mandible without cusps; basal segment with a single short broad tooth on the upper margin near the apex, and a remote group of six fine teeth besides, the "*large tooth*" being absent; the lower margin bears four equidistant teeth, the first at the apical angle. The tibia of the palpus is about one-fourth longer than the patella; the conductor presents basally four thin spiraloid lobes, and is slightly geniculate at the apex, but not dilated; the cymbium is not bifid at its apex.

♀. Abdomen very long, and uniform in width throughout, with a broad, yellowish, central, longitudinal, dorsal band, with a narrow silver line in the centre and a row of dark spots on each margin; this band is flanked by a broad band of silver spangles, the ventral area being dark brown, black down the centre, more or less spangled with silver-yellow on the sides. The fang is without cusps, the upper margin of the basal segment of the mandible bearing five teeth, the third being the largest, the lower margin with one tooth at the apex, and a remote group of five closely situated teeth.

*Hab.* MEXICO, Vera Cruz (*Sallé*[1]), Teapa in Tabasco, Atoyac (*H. H. Smith*); GUATEMALA (*Sarg*[2]).

The type (♀) of *T. mexicana* (probably not fully developed) is now before me, and it is identical with that of *T. longa*, and with other examples in the collection.

### 11. **Tetragnatha gracilis.** (Tab. XLI. figg. 10, 10 *a*, *b*, ♂; 11, ♀.)

*Eugnatha gracilis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 11, t. 2. figg. 1, 1 *a–d* (♂), 2, 2 *a*, *b* (♀)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 9, ♀ 11·5 millim.

Lateral eye-tubercles well separate, two diameters of the posterior tubercle apart. Legs clothed with fine, erect, and oblique hairs, and with very long slender spines. The fang of the mandible is without cusps; the upper margin of the fang-groove of the male bears eight long slender teeth, the lower margin also bears a similar number, the apical tooth being the largest; the "*long tooth*" is absent. The tibia of the palpus is from two to three times longer than the patella; the conductor is long, narrow, and attenuate towards the apex, not geniculate nor dilate; the embolus is slightly curved at its apex.

♀. Abdomen very long, slightly enlarged anteriorly, but not gibbous; the body and legs entirely pale yellow, the abdomen, dorsally and laterally, densely covered with silvery-yellow spangles, the ventral area being dull yellow throughout its length. The fang of the mandible is without cusps, the upper and lower

margin of the fang-groove each bearing ten subequal teeth; the latter has no tooth at the extreme apex of the segment.

*Hab.* MEXICO, Atoyac in Vera Cruz (*H. H. Smith*); GUATEMALA, Cubilguitz [ ♀ ], San Juan Chamelco [ ♂ ] (*Sarg* [1]).

### 12. **Tetragnatha pallida.** (Tab. XLI. figg. 12, 12 *a*, *b*, ♂; 13, ♀.)

*Tetragnatha pallida*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 10, t. 2. figg. 8, 8 *a–d* (♂), 9, 9 *a*, *b* (♀) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 7·5, ♀ 10·5 millim.

Lateral eyes well separate, one diameter of the posterior eye-tubercle apart. Legs clothed with long spines and fine hairs, the former not so long in proportion as in *T. gracilis*, but longer than in the other species of the genus. The fang of the mandible bears no cusps; the upper margin of the fang-groove bears six teeth, the first being very long, but the "*long tooth*" proper is absent; the lower margin bears seven teeth. The tibia of the palpus is one-fourth longer than the patella; the basal portion of the tarsus is very short, less than one-half the apical portion, the bulb being globular; the conductor is very long, narrow, not geniculate nor dilate at its apex, and the embolus is straight or slightly sinuous throughout. The body and legs in both sexes are yellow.

♀. Abdomen slightly enlarged anteriorly, but not gibbous above, dorsally and laterally covered with silver-yellow spangles, the ventral area being dull yellow throughout its length. The dentition of the mandible consists of seven teeth on both margins of the fang-groove, the fang itself being without cusps.

*Hab.* PANAMA, Bugaba (*Champion* [1]).

### 13. **Tetragnatha digitata.** (Tab. XLI. figg. 14, 14 *a*, *b*, ♂.)

*Tetragnatha digitata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 299, t. 36. figg. 11, 11 *a–f* (♂), 12, 12 *a* (♀) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5·75, ♀ 7 millim.

Lateral eye-tubercles in contact. Legs clothed with fine hairs and a few short fine spines. The fang has no cusps; the upper margin of the fang-groove bears six teeth, the first being the largest, and forming a subsimilar and parallel tooth with the normal dorsal spur, which is short and situated on the extreme external apical angle; the lower margin bears five short teeth. The tibia and patella of the palpus are subequal in length; the bulb is globular and comparatively large, the conductor long and narrow, not geniculate nor dilate at the apex, while the embolus is straight throughout, very fine and abruptly curved into a small hook at the apex; the cymbium has two angular prominences at its apex.

♀. Abdomen gibbous anteriorly; the fang without dorsal basal cusp; upper margin of fang-groove with six teeth, the first two less than the length of the first apart; lower margin with five teeth, closely situated at their base. The spines on the legs are few, but distinct.

*Hab.* MEXICO, Orizaba (*H. H. Smith*); COSTA RICA (*Sarg* [1]).

### 14. **Tetragnatha mandibulata.**

*Tetragnatha mandibulata*, Walck. Ins. Apt. ii. p. 211 (♀) [1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 246 (♀) [2].

*Hab.* MEXICO, Tepic [2].—ISLAND OF GUAM [1].

### 15. **Tetragnatha banksi,** nom. n.

*Tetragnatha intermedia*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 247, t. 15. fig. 14 (♂) [1].

Type, ♂, in coll. Calif. Acad. Sci. Total length 8·5 millim.

*Hab.* MEXICO, Tepic [1].

The name *intermedia* is preoccupied in this genus by Kulczynski [Aran. Hungar. i. p. 145 (1891)], and a new one is here proposed in its stead.

### 16. **Tetragnatha orizaba.**

*Eugnatha orizaba,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 248, t. 15. fig. 16 (♂) [1].

Type, ♂, in coll. Calif. Acad. Sci. Total length 5 millim.

*Hab.* Mexico, Orizaba (*Banks* [1]).

### 17. **Tetragnatha pallescens,** nom. n.

*Tetragnatha pallida,* Banks, Proc. Acad. Phil. 1892, p. 51, t. 5. figg. 88, 88 *a* [1] (nomen præocc.).
*Eugnatha pallida,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 248 [2].

Type, ♂, in coll. Acad. Phil. Total length 9 millim.

*Hab.* North America, Cayuga Lake [1].—Mexico, Tepic [2].

## AGRIOGNATHA.

*Cyrtognatha,* Keyserling, Verh. zool.-bot. Ges. Wien, xxxi. p. 276 (1881) (nomen præocc.).
*Agriognatha,* O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 212 (1896).

Type of *Cyrtognatha*, *C. nigrovittata*, Keys., Peru, in coll. Univ. Warsaw; that of *Agriognatha*, *A. bella*, O. P.-Cambr., Costa Rica.

The species here referred to this genus differ from *Tetragnatha* in having the lateral eyes in contact. In the males the apex of femur ii. has on the outer side a single stout spine, which is opposed by a sharp angular prominence on the patella, evidently used for holding the female, and femur i. (besides numerous other spines) is set with a row of from 4–9 spines in front. The mandibles resemble those of *Pachygnatha*, and have no basal boss on the outer side. The inner side of the protarsi i. and ii. is set with a single series of spiniform setæ, while in the male there is also a series of short spines beneath.

I have not seen the type of the genus *Cyrtognatha*, Keyserl., but there is no reasonable doubt that Simon is correct in his identification of the characters, and his *C. serrata*, from St. Vincent, which is now before me, is congeneric with *Agriognatha bella*, O. P.-Cambr.

The species known to me may be recognized as follows:—

*Males.*

| | |
|---|---|
| *a.* Embolus and sheath of palpal bulb strongly geniculate, the apex directed backwards. Bulb with a stout sharp spur on the outer side beneath, where the conductor and embolus spring . | *pachygnathoides,* O. P.-Cambr. |
| *b.* Embolus and sheath of palpal bulb merely sinuous, more slender. Bulb without spur on the outer side . . . . . | *bella,* O. P.-Cambr. |

Note.—The female only of *A. lepida* has come to hand.

### 1. Agriognatha pachygnathoides.

*Tetragnatha pachygnathoides,* O. P.-Cambr. Biol. Centr-Amer., Arachn. Aran. i. p. 144, t. 18. figg. 4, 4 *a–e* (♂) [1].

*Agriognatha pachygnathoides,* O.-P. Cambr. loc. cit. p. 213 [2].

Type, ♂, in coll. Godman & Salvin. Total length 5·75 millim.

*Hab.* Panama, Chiriqui (*Champion* [1]).

### 2. Agriognatha bella.

*Agriognatha bella,* O. P.-Cambr. Biol. Centr.-Amer., Arach. Aran. i. p. 213, t. 28. figg. 7, 7 *a–f* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 4·75 millim.

*Hab.* Costa Rica (*Rogers* [1]).

### 3. Agriognatha lepida.

*Argyroepeira lepida,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 7, t. 1. figg. 8, 8 *a, b* (♀) (1889) [1] [nec *Argyroepeira lepida,* Keyserl. Verh. zool.-bot. Ges. Wien, xxxi. p. 273 (1881); Spinn. Amer., Epeiridæ, p. 327, t. 17. figg. 242, 242 *a–d* (♀) (1892)].

Type, ♀, in coll. Godman & Salvin. Total length 11·25 millim.

*Hab.* Panama, Bugaba (*Champion* [1]).

I am not quite satisfied as to the generic position of this species; it may possibly belong to *Prionolæma,* Simon.

## Subfam. *MEITNÆ.*

The spiders included in this subfamily comprise those usually known under the genera *Argyroepeira, Meta,* and *Azilia.* The name *Argyroepeira* becomes a synonym under *Leucauge* [*cf.* Ann. & Mag. Nat. Hist. (7) ix. p. 16]. The Metinæ differ from the Tetragnathinæ in having a rudimentary rounded boss at the base of the mandible on the outer side. The vulva in the female is not simple as in *Tetragnatha,* but more or less developed externally.

The web is of the usual orb type, and, like that of *Tetragnatha,* has an open space in the centre. The genera, several of which are treated as new, may be recognized by the characters given below :—

### Genera.

A. Femur iv. with a double row of tubercles in front, one-half to two-thirds from the base, bearing long, fine, curved ciliæ.

1. Tibiæ and protarsi i. and ii., in both sexes, studded with rows of triangular thorn-like cuspules . . . . . Plesiometa, gen. nov.
2. Tibiæ and protarsi i. and ii. not studded with cuspules.
   - *a.* Posterior coxæ closely situate, one-third of their diameter apart . Leucauge, White.
   - *b.* Posterior coxæ more widely separate, one full diameter apart . . Mecynometa, Simon.

B. Femur iv. without ciliated tubercles.
*aa*. Tibiæ i. and ii. without a series of spiniform bristles.
$a^1$. Femur i. at least three times as long as the carapace. Sternum produced between coxæ iv. as far as the posterior side of the segment . . . . . METARGYRA, gen. nov.
$b^1$. Femur i. not more than two-thirds longer than the carapace. Sternum not produced beyond the anterior side of the segment.
$a^2$. Legs clothed with short, fine, erect, silky hairs . . . . . PSEUDOMETA, gen. nov.
$b^2$. Legs not clothed with fine, erect, silky hairs.
$a^3$. Eyes smaller; posterior row almost straight . . . . . META, C. L. Koch.
$b^3$. Eyes larger; posterior row strongly recurved . . . . . AZILIA, Keyserl.
*bb*. Tibiæ i. and ii. with a series of spiniform bristles on each side . . DOLICHOGNATHA, [O. P.-Cambr.

## PLESIOMETA, gen. nov.

Type *P. argyra* (Walck.). Antilles, Guadeloupe.

The single species referred to this genus differs from the type of *Leucauge* in possessing, in both sexes, numerous small cusps beneath the tibiæ and protarsi of the first two pairs of legs. The posterior femora exhibit the rows of ciliæ which are characteristic of the group.

### 1. **Plesiometa argyra.** (Tab. XLI. figg. 15, 15 *a–c*, ♂; 16, 16 *a*, ♀.)

*Tetragnatha argyra*, Walck. Ins. Apt. ii. p. 219, t. 19. fig. 1 (♀)[1].
*Meta argyra*, Keyserl. Verh. zool.-bot. Ges. Wien, xxx. p. 563 (1880)[2].
*Argyroepeira argyra*, Keyserl. Spinn. Amer., Epeiridæ, p. 343, t. 18. figg. 253, 253 *a–c* (♀) 253 *d* (♂)[3]; McCook, Amer. Spid. iii. p. 243, t. 24. figg. 2, 2 *a–c* (♀), 3, 3 *a*, *b* (♂)[4]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 257[5]; Simon, P. Z. S. 1897, p. 870[6].
*Linyphia ornata*, Tacz. Horæ Soc. Ent. Ross. x. p. 66 (1873)[7].

*Hab.* NORTH AMERICA, California[4].—MEXICO[3], Tepetlapa, Orizaba, Atoyac, Teapa (*H. H. Smith*), Minatitlan, Tepic (*fide Banks*[5]); GUATEMALA (*Sarg*); PANAMA, Bugaba (*Champion*).—VENEZUELA; GUIANA[7], Cayenne[3], Uassa[3]; LOWER AMAZONS (*F. O. P.-C.*); ANTILLES[3], Guadeloupe[1], St. Vincent[6].

## LEUCAUGE.

*Leucauge*, White, Ann. & Mag. Nat. Hist. vii. p. 473 (1841).
*Argyroepeira*, Emerton, Trans. Conn. Acad. Sci. vi. p. 328 (1884).
*Opas*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 184 (1896).

Type of *Leucauge*, *L. argyrobapta*, White, = *L. formosa* (Blackw.), Rio Janeiro; that of *Argyroepeira*, *L. hortorum* (Hentz), N. America; that of *Opas*, *O. lugens*, O. P.-Cambr., Central America.

It is not possible to settle the identity of *L. argyrobapta* with absolute certainty, but there is a strong probability that it is the *Tetragnatha formosa* of Blackwall, a fine

species common in the neighbourhood of Rio Janeiro. The examples of this latter, from the Keyserling collection, now before me, are closely allied to *Argyroepeira hortorum*, but specifically distinct therefrom. They do not possess the cusps beneath the tibiæ and protarsi i. and ii. which are noticeable in *A. argyra* (Walck.).

For the present I accept McCook's identification of *L. venusta*, Walck., which he regards as equivalent to *L. hortorum*, Hentz. Emerton's identification of this latter species must also be accepted as correct; and, since there can be no reasonable doubt that the two species figured by McCook and Emerton are identical, the name *venusta* has precedence over *hortorum*.

The species known to me from Central America may be recognized by the following characters:—

*Males.*

A. Tibia of the palpus as long as or longer than the tarsus.
  *a*. Mandible, seen in profile, more or less deeply indented close to the apex.
    1. Mandible very deeply indented at its apex. Conductor (*c*) of bulb bearing a short sinuous process at the apex . . . . *mandibulata*, sp. n.
    2. Mandible much less deeply indented at the apex. Conductor (*c*) of bulb without a process at the apex . . . . . *longipes*, sp. n.
  *b*. Mandible, seen in profile, not indented near the apex, evenly convex.
    $a^1$. Mandible with a cluster of black curved bristles in front towards the apex. Conductor and embolus of palpal bulb simply sinuous, not enlarged . . . . . *venusta*, Walck.
    $b^1$. Mandible without a cluster of bristles in front towards the apex. Conductor and embolus enlarged and membranous at their apex (see figure) . . . . . *aurostriata*, O. P.-Cambr.
B. Tibia of palpus much shorter (one-half or one-quarter) than the tarsus.
  $a^2$. Tibia of palpus twice the length of the patella. Mandible attenuate towards the apex, with numerous long stout bristles on the inner anterior side, and a series of curved bristles, besides hairs, on the outer side . . . . . *setigera*, sp. n.
  $b^2$. Tibia of palpus scarcely longer than the patella. Mandible simply convex to the apex, not attenuate; without stout bristles in front or curving hairs on the outer side, a few short fine hairs only present . . . . . *mœrens*, O. P.-Cambr.

*Females.*

A. Abdomen striped longitudinally.
  *a*. Abdomen presenting a central clear stripe with two median diverticula on each side and also two longitudinal lateral stripes.

$a^1$. The two lateral stripes not clear, but filled up with golden scales . . . . . *aurostriata.*

$b^1$. The two lateral stripes clear, not filled up with metallic pigment.

$a^2$. Vulval orifice limited anteriorly by a transverse semicircular chitinous margin. Abdomen less prominent behind.

$a^3$. The anterior margin of the vulval cavity without a prominent angle in the centre.

1. The central tongue of the vulva broader anteriorly.

$a^4$. The central tongue of the vulva four times broader anteriorly than at the posterior margin . . . . { *argentea,* Keyserl. / *venusta.*

$b^4$. The central tongue only slightly broader anteriorly . *mandibulata.*

2. The central tongue of the vulva much narrower anteriorly, exhibiting posteriorly a transverse hammer-head plate . . . . . *fragilis,* O. P.-Cambr.

$b^3$. The anterior margin of the vulval cavity with a prominent angle in the centre . . . . . *idonea,* O. P.-Cambr.

$b^2$. Vulval orifice not limited anteriorly by a semicircular transverse margin. Abdomen very prominent behind . . *acuminata,* O. P.-Cambr.

*b*. Abdomen without lateral stripes or bands . . . . . *simplex,* sp. n.

B. Abdomen not striped longitudinally, simply variegated with blotches and slashes, or sometimes almost unicolorous.

$a^5$. Abdomen produced behind above the spinners into a very conspicuous, long, rounded tubercle . . . . . *lugens,* O. P.-Cambr.

$b^5$. Abdomen not produced behind to form a definite tubercle.

$a^6$. Carapace yellow. Abdomen richly variegated with orange, silver, and black. Vulva larger, central tongue straight along its posterior margin . . . . . *mœrens.*

$b^6$. Carapace black. Abdomen almost entirely black, with dull white spots and blotches. Vulva smaller, central tongue produced in the centre of the posterior margin . . . . . *mesomelas,* O. P.-Cambr.

Note.—The females of species belonging to this genus are very difficult to separate, and the characters given above must not be taken too literally. The type of *L. curta* (O. P.-Cambr.) is not fully mature, and the specimen being much worn and the legs absent, the species cannot be included in the Table. I cannot at present distinguish *L. argentea* (Keyserl.) from *L. venusta* (Walck.), and more males of the former from Colombia are required before one can decide. *L. maura* (Banks) is unknown to me.

### 1. **Leucauge mandibulata,** sp. n. (Tab. XLI. figg. 17, 17 *a–c*, ♂; 18, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 10 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*).

This fine species closely resembles other large members of the group, but may be distinguished by the characters given in the Table. The coloration of different examples varies so much that it is useless to describe it minutely.

2. **Leucauge longipes,** sp. n. (Tab. XLI. figg. 19, 19 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*).

Very similar to the preceding, but with the legs longer and more densely clothed with fine, curved, silky ciliæ. For more reliable characters, see the Table and Plate.

3. **Leucauge venusta.** (Tab. XLII. figg. 1, 1 *a–c*, ♂; 2, ♀.)

*Epeira venusta,* Walck. Ins. Apt. ii. p. 90 [1]; Abbot, Georgian Spiders, no. 113 [2].

*Argyroepeira venusta,* McCook, Amer. Spid. iii. p. 242, t. 20. figg. 1, 1 *a–c*, 2, 3, 5, 6 (♀), 4, 4 *a* (♂) (1893) [3].

*Epeira hortorum,* Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 477 [4]; Spid. U.S. p. 18, t. 13. fig. 19 (♀) [5].

*Argyroepeira hortorum,* Emerton, Trans. Conn. Acad. Sci. vi. p. 332, t. 37. figg. 30–32 (♂ ♀) [6].

*Tetragnatha quinquelineata,* Keyserl. Sitz.-ber. naturw. Ges. Isis, Dresden, p. 145, t. 7. figg. 3–6 (1863) [7].

*Argyroepeira aurulenta,* Simon, P. Z. S. 1897, p. 871 [8].

*Hab.* North America [3], Georgia [1 2], Baltimore [7].—Mexico [8], Misantla (*Godman*), Orizaba, Omilteme, Dolores, Teapa (*H. H. Smith*); Guatemala (*Sarg*); Costa Rica, San José (*Rogers*); Panama, Bugaba (*Champion*). — Colombia [7]; Antilles, St. Vincent [8].

4. **Leucauge aurostriata.** (Tab. XLII. figg. 3, 3 *a*, ♂; 4, ♀.)

*Argyroepeira aurostriata,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 230, t. 29. figg. 2, 2 *a–d* (♂), 3, 3 *a–d* (♀) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4·5, ♀ 7 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

5. **Leucauge setigera,** sp. n. (Tab. XLII. figg. 5, 5 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 2 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*).

This small species may be recognized by the characters given in the Table and on the Plate.

6. **Leucauge mœrens.** (Tab. XLII. figg. 6, 6 *a*, *b*, ♂; 7, ♀.)

*Opas mœrens,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. 185, 229, t. 23. figg. 6, 6 *a–e* (♀) [1].

*Argyroepeira pulcherrima,* O. P.-Cambr. loc. cit. p. 230 (♂) [2] [nec *A. pulcherima* (sic), Keyserl. Spinn. Amer., Epeiridæ, p. 325, t. 16. figg. 239, 240, 240 *b*, *c* (♀)].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3, ♀ 4 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1 2]); Guatemala (*Sarg* [2]); Panama, Bugaba (*Champion*).

The embolus in the palpus of the male of this species takes an abrupt bend across the apex of the conductor. For other characters, see Table and Plate. *A. pulcherrima*, Keyserl., from Colombia, the type of which is before me, is a much larger species, and I think quite distinct.

### 7. **Leucauge fragilis.** (Tab. XLII. fig. 8, ♀.)

*Argyroepeira fragilis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 6, t. 1. figg. 11, 11 *a*, *b* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 362, t. 19. figg. 269, 269 *a* (♀)[2].

Type, ♀, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* Guatemala[2]; Costa Rica (*Rogers*[1]).

### 8. **Leucauge idonea.** (Tab. XLII. fig. 9, ♀.)

*Argyroepeira idonea*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 4, t. 1. figg. 7, 7 *a*,*b* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 363, t. 19. figg. 270, 270 *a* (♀)[2].

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* Guatemala[2]; Panama, Bugaba (*Champion*[1]).

### 9. **Leucauge acuminata.** (Tab. XLII. figg. 10, 10 *a*, ♀.)

*Argyroepeira acuminata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 5, t. 1. figg. 6, 6 *a*, *b* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 364, t. 19. figg. 271, 271 *a*, *b* (♀)[2].

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

*Hab.* Guatemala[2]; Panama, Bugaba, Tolé (*Champion*[1]).

### 10. **Leucauge simplex,** sp. n. (Tab. XLII. fig. 11, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 11 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*).

For the characters by which this small species may be distinguished from other closely allied forms, see Table and Plate.

### 11. **Leucauge lugens.** (Tab. XLII. figg. 12, 12 *a*, ♀.)

*Opas lugens*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 185, t. 23. figg. 3, 3 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

This species can at once be recognized by the very distinct tubercle at the apex of the abdomen (see Plate).

### 12. **Leucauge argentea.**

*Meta argentea*, Keyserl. Verh. zool.-bot. Ges. Wien, xv. p. 834, t. 20. figg. 6, 7 (1865)[1].

*Argyroepeira argentea,* Keyserl. Spinn. Amer., Epeiridæ, p. 326, t. 17. figg. 241, 241 *a, b* (♀)[2]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 257[3].

Type, ♀, in Mus. Brit. Total length 5·7 millim.

*Hab.* Mexico, Tepic (*fide Banks*[3]).—Colombia[1 2].

### 13. **Leucauge mesomelas.** (Tab. XLII. fig. 13, ♀.)

*Argyroepeira mesomelas,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. 135, 230, t. 16. figg. 3, 3 *a–e* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

A species readily recognizable by its black coloration.

### 14. **Leucauge curta.**

*Argyroepeira curta,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 6, t. 1. figg. 10, 10 *a, b* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 3·75 millim.

*Hab.* Panama, Bugaba (*Champion*[1]).

I am unable to find in the type of this species any differential characters which one can consider satisfactory for distinguishing it from other allied forms.

### 15. **Leucauge maura.**

*Epeira maura,* Hentz, Spid. U.S. p. 114, t. 13. fig. 8[1].
*Argyroepeira maura,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 257[2].

*Hab.* North America, Alabama[1].—Mexico, Tepic (*fide Banks*[2]).

## MECYNOMETA.

*Mecynometa,* E. Simon, Hist. Nat. Araign. 2nd edit. i. p. 737 (1895).

Type *M. globosa* (O. P.-Cambr.). Central America.

The type of this genus is perhaps more like *Leucauge* than *Meta*; but may be distinguished from the former by the much greater width between the posterior coxæ, and from the latter by the possession, in common with *Leucauge*, of a double row of ciliæ on the basal half of femur iv. The colulus is also present.

### 1. **Mecynometa globosa.** (Tab. XLII. fig. 14, ♀.)

*Meta globosa,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 2, t. 1. figg. 5, 5 *a–c* (♀)[1].
*Argyroepeira globosa,* Keyserl. Spinn. Amer., Epeiridæ, p. 318, t. 16. figg. 234, 234 *a, b*[2].
*Mecynometa globosa,* Simon, Hist. Nat. Araign. 2nd edit. p. 737[3].

Type, ♀, in coll. Godman & Salvin. Total length 2·75 millim.

*Hab.* Guatemala[2 3], Panzos, Senahu (*Sarg*[1]).

## METARGYRA, gen. nov.

Type *M. debilis* (O. P.-Cambr.). Central America.

The species which is here made the type of a new genus differs from the types of *Leucauge*, *Plesiometa*, and *Mecynometa* in being without a series of ciliæ on femur iv.; and from *Meta* in having the sternum produced between coxæ iv., and femur i. relatively much longer.

### 1. **Metargyra debilis.** (Tab. XLII. figg. 15, ♂; 16, ♀.)

*Argyroepeira debilis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 5, t. 1. figg. 9, 9 *a*, *b* (♀)[1]; loc. cit. p. 218, t. 28. figg. 4, 4 *a–e* (♂), 4, 4 *a–d* (♀)[2]; Keyserl. Spinn. Amer., Epeiridæ, p. 365, t. 19. figg. 272, 272 *a*[3].

Type ♀, androtype ♂, in coll. Godman & Salvin. Total length, ♀ 4·5, ♂ 2·75 millim.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith*[2]); GUATEMALA[3]; PANAMA, Bugaba (*Champion*[1]).

## PSEUDOMETA, gen. nov.

*Argyroepeira*, Keyserling, ad part., Spinn. Amer., Epeiridæ (1892).

Type *P. flava* (O. P.-Cambr.). Mexico.

The species of Central-American spiders here referred to the present genus may be recognized from the typical *Meta* (type *M. fusca*, C. L. Koch) by the legs in the male sex being entirely clothed with fine, short, erect, silky hairs, and by the finely rugulose-striate groove on the outer side of the mandible. They may, with *Meta*, be separated from *Leucauge* and *Mecynometa* by the absence of ciliæ on the posterior femora. The tarsus of the male palpus is more or less bifid at its base, or broken up into an irregular apophysis or "*cymbium*," while the apex of the bulb presents a stout, circularly curved spine lying flat across the apex, *Pseudometa* differing entirely in this respect from *Leucauge*.

The species known to me may be distinguished as follows:—

*Males.*

A. Base of tarsal sheath without a hook-like spur.
  *a*. Apophysis at the base of the tarsal sheath with *two* short sharp spurs (one longer and black) between the base and the anterior branch . . . . . *flava*, O. P.-Cambr.
  *b*. Apophysis at the base of the tarsal sheath with only *one* short sharp spur between the base and the anterior branch . . . . *superans*, O. P.-Cambr.
B. Base of tarsal sheath with a stout, hook-like, sharp spur, its point directed forwards . . . . . *uncata*, sp. n.

*Females.*

A. Vulval area smaller; triangular or hammer-headed piece on the posterior margin more conspicuous.
  *a*. Posterior marginal piece subtriangular, but variable in form . . *brevipes*, O. P.-Cambr.
  *b*. Posterior marginal piece hammer-headed . . . . . *alboguttata*, O. P.-Cambr.
B. Vulval area larger; triangular posterior marginal piece less conspicuous . . . . . *decolorata*, O. P.-Cambr.

Note.—It is almost impossible to decide whether the females named above really belong to different species, and, if so, what are the best characters for distinguishing them. So far as coloration goes, a specimen of *M. brevipes* with the abdominal pattern obsolete becomes *M. alboguttata*. But since the males here recorded evidently run very close together, it is quite possible that the species of which the female only is known would be easily separable if a longer series was available for examination. At present, one is compelled to leave them more or less unsatisfactorily defined.

### 1. **Pseudometa flava.** (Tab. XLII. figg. 17, 17 *a*, *b*, ♂.)

*Meta flava*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 135, t. 18. figg. 8, 8 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 5·5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

### 2. **Pseudometa superans.** (Tab. XLII. figg. 18, 18 *a*, ♂.)

*Meta superans*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 217, t. 28. figg. 2, 2 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

### 3. **Pseudometa uncata,** sp. n. (Tab. XLII. figg. 19, 19 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 3·5–4 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*).

There are no general marks of distinction by which one may separate this species from the two preceding. It is smaller, but relative size is of no value amongst the members of the present genus. For the single differential character, see the Table and Plate.

### 4. **Pseudometa brevipes.** (Tab. XLII. figg. 20, 20 *a*, *b*, ♀.)

*Meta brevipes*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 1, t. 1. figg. 3, 3 *a*, *b* (♀)[1].
*Argyroepeira brevipes*, Keyserl. Spinn. Amer., Epeiridæ, p. 316, t. 16. figg. 232, 232 *a* (♀)[2].

Type, ♀, in coll. Godman & Salvin. Total length 4 millim.

*Hab.* Guatemala[2], Chilasco (*Sarg*[1]).

### 5. **Pseudometa alboguttata.** (Tab. XLII. figg. 21, 21 *a*, ♀.)

*Meta alboguttata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 2, t. 1. figg. 1, 1 *a–d* (♂), 2, 2 *a*, *b* (♀) [1].

*Argyroepeira alboguttata*, Keyserl. Spinn. Amer., Epeiridæ, p. 316, t. 16. figg. 233, 233 *a–d* (♀) [2].

*Chrysometa alboguttata*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 258 [3].

Type, ♀ (androtype, ♂, missing), in coll. Godman & Salvin. Total length, ♀ 4·5, ♂ 3·5 millim.

*Hab.* MEXICO, Tepic (*fide Banks* [3]); GUATEMALA [2], San Marcos, Tamahu, Panzos, Sakiyac (*Sarg* [1]); PANAMA, Bugaba (*Champion* [1]).

### 6. **Pseudometa decolorata.** (Tab. XLII. fig. 22, ♀.)

*Meta decolorata*, O. P.-Cambr. Biol. Centr-Amer., Arachn. Aran. i. p. 3, t. 1. figg. 4, 4 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* GUATEMALA, between Dolores and Chapallal (*Sarg* [1]).

## META.

*Meta*, C. L. Koch, Deutschl. Ins. (Panzer), Heft. 124, nos. 12, 13 (1834).

*Metabus*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 298 (1899).

Type of *Meta*, *M. fusca*, C. L. Koch, = *M. menardi* (Latr.), Europe; that of *Metabus*, *M. gravidus*, O. P.-Cambr., Guatemala.

In the original diagnosis of the genus *Metabus* no differential characters are cited whereby one may distinguish it from *Meta*, to which *M. gravidus* is said to be closely allied. I cannot, moreover, at present, discover any peculiarity in the single female before me which would warrant its removal from *Meta*, though it is possible that with more material of both sexes one might find some reliable mark of distinction. For the present, therefore, the single species of *Metabus* is referred to the genus *Meta*.

### 1. **Meta gravida.**

*Metabus gravidus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 299, t. 37. figg. 7, 7 *a–e* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 11·25 millim.

*Hab.* GUATEMALA (*Sarg* [1]).

## AZILIA.

*Azilia*, Keyserling, Verh. zool.-bot. Ges. Wien, xxxi. p. 270 (1881).

Type *A. formosa*, Keyserl. America.

The spiders belonging to this genus are nearly related to the typical *Meta* in their structural characters. The eyes of both rows are very large, and the rows are recurved, the laterals being widely separate and raised on low tubercles. The mandibles exhibit

the basal external boss. The tarsal sheath of the palpus is divided at the base, forming a narrow lateral cymbium. The colulus is present.

The females of the two species recorded from Central America may be separated thus:—

*Females.*

1. Vulva broadly triangular, very convex in the middle, without deep punctures on each side of the central tongue; prominent, seen in profile . . . . . *guatemalensis*, O. P.-Cambr.
2. Vulva transverse-oval, convex, with two deep punctures on each side of a central tongue; not prominent, seen in profile . . . *affinis*, O. P.-Cambr.

## 1. Azilia guatemalensis.

*Azilia guatemalensis*, O. P.-Cambr. Biol. Centr.-Amer, Arachn. Aran. i. p. 12, t. 3. figg. 3, 3 *a*, *b* (♂), 4, 4 *a–c* (♀) [1]; Keyserl. Spinn. Amer., Epeiridæ, p. 267, t. 14. figg. 198 (♀), 198 *a* (♂) [2]; Simon, P. Z. S. 1897, p. 872 [3].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5·75, ♀ 7–9·5 millim.

*Hab.* Guatemala (*Sarg* [1]); Panama, Bugaba (*Champion* [1]).—Peru [2]; Antilles, St. Vincent (*Simon* [3]).

## 2. Azilia affinis.

*Azilia affinis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 115, t. 15. figg. 4, 4 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 7·75 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

# DOLICHOGNATHA.

*Dolichognatha*, O. P.-Cambridge, Journ. Linn. Soc., Zool. x. p. 388 (1869).

Type *D. nietneri*, O. P.-Cambr. Ceylon.

The labium is much broader than long, while the maxillæ are elongate and dilate at their apex. The central posterior eyes are much nearer to each other than to the laterals, being contiguous and a little smaller, and the posterior row is straight. The eyes of the anterior row are larger, almost equidistant, and situated in a straight line. Tarsus iv. without comb beneath, tarsal claws 3. Colulus present. Sternum produced to a conical point between coxæ iii. and iv.

## 1. Dolichognatha tuberculata.

*Cyrtophora tuberculata*, Keyserl. Spinn. Amer., Epeiridæ, p. 265, t. 14. figg. 197, 197 *a–c* (♀) (1893) [1].

*Dolichognatha tigrina*, E. Simon, Ann. Soc. Ent. Fr. lxii. p. 330 (♂) (1893) [2]; P. Z. S. 1897, p. 872 [3].

*Dolichognatha diversa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 147, t. 20. figg. 9, 9 *a–e* (♀) (1895) [4].

Type, ♀, of *C. tuberculata*, total length 3 millim., in coll. Marx; of *D. tigrina*, ♂, total length 2·7 millim., in coll. E. Simon; of *D. diversa*, ♀, in coll. Godman & Salvin, total length 2·25 millim.

*Hab.* North America, Florida [1].—Mexico, Teapa in Tabasco (*H. H. Smith* [4]).—Venezuela, Caracas [2]; Antilles, St. Vincent [3].

The synonymy given above is based on E. Simon's authority [3].

## Subfam. *NEPHILINÆ.*

The spiders here included for convenience under this subfamily comprise the giants amongst orb-weaving species, in the female sex at all events; for the male, as is well known, is exceedingly small in comparison. The orb-web is of immense size and very strong. I have seen them in the Amazonian forest stretched between trees situated twenty feet or more apart, the orb-shaped portion being three or four feet in diameter. The tangled mass of surrounding threads is tenanted by numbers of one or more species of the bright little silvery spiders of the genus *Argyrodes*, of the family Theridiidæ, as already noted, *anteà*, p. 401.

The vulva in the genus *Nephila*, the single genus included in the subfamily, is simple, as is also the palpus of the male. The carapace is convex, with often a pair of more or less well-developed cusps above, at the base of the cephalic area. The central ocular quadrangle is nearly square and the posterior row of eyes is straight. The legs are long and very strong, stiffly articulated; the fourth pair are without a tarsal comb beneath. The colulus is present.

### NEPHILA.

*Nephila*, Leach, Zool. Miscell. ii. p. 133 (1815).

Type *N. maculata* (Fabr.). India and Malay Archipelago.

This genus may be distinguished from *Argyope*, of the subfamily Argyopinæ, by the convexity of the carapace, and by the ocular quadrangle being nearly square.

A single species only, so far as I am able to recognize the distinctive characters, has been recorded from Central America.

#### 1. **Nephila clavipes.** (Tab. XLII. figg. 23, 23 *a*, *b*, ♂; 24, 24 *a*, ♀.)

*Aranea clavipes*, Linn. Syst. Nat. 12th edit. i. 2, p. 1034 (♀) [1].

*Nephila clavipes*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 257 [2]; F. P.-Cambr. Ann. & Mag. Nat. Hist. (7) vii. p. 325 [3].

*Aranea cornuta*, Pallas, Spic. Zool. fasc. ix. p. 44 [4].

*Aranea fasciculata*, De Geer, Mém. Ins. vii. p. 316, t. 39. figg. 1–4 (♀) [5].

*Nephila plumipes*, C. L. Koch, Die Arachn. vi. p. 138, t. 213. fig. 529 (♀) [6].

*Epeira plumipes*, Walck. Ins. Apt. ii. p. 99 [7].

*Nephila wilderi*, McCook, Amer. Spid. iii. p. 251, t. 7. fig. 2, t. 23. figg. 7, 7 *a* (♂), t. 7. fig. 1, t. 23. figg. 6, 6 *a* (♀) [8].

*Nephila wistariana*, McCook, loc. cit. p. 252, t. 23. figg. 2, 2 *a–d* (♀), 3, 3 *a*, *b* (♂) [9].

*Nephila concolor*, McCook, loc. cit. p. 256, t. 23. figg. 1, 1 *a–c* (♀) [10].

*Hab.* North America, Southern, Atlantic, and Gulf States [6], California [8 9].—Mexico, Tepic [9].—South America, Colombia, Amazons, Brazil, &c.; Antilles [3].

In my paper [3] cited above I have suggested that it is probable that all the varieties of this *Nephila* described by various authors under several different names are really referable to the same species, and that even the variety known as *N. cornuta* (Pallas) is the same as the unhorned form usually identified as *N. clavipes* (Linn.). The tufts of hair on the legs, as well as the horns on the carapace, are very variable in extent and development. McCook [8 9] has described two species—*N. wilderi* and *N. wistariana*, on the non-horned varieties, as distinct from *N. clavipes* (Linn.). He says (*loc. cit.* p. 252) that *N. wilderi* "has a strong sternal cone opposite the labium, which is but faintly developed in *N. clavipes*; and that it is also distinguished from that species by the hair-fringes on femora i. and ii., which are wanting in *N. clavipes*." But in his description of *N. clavipes* (p. 255) he says that this species has "sternal cones distinct, and one especially prominent in front of the labium, as in *N. wilderi*." *N. wistariana* is also distinguished by "the absence of the strong sternal cone opposite the labium, which marks *N. wilderi*." It is difficult to understand how *N. wistariana* can be, in any case, different from *N. clavipes*, for both these forms are distinguished from *N. wilderi* by the absence of tufts on femora i. and ii., and by the tubercle opposite the labium being only faintly developed (sec. McCook). But I cannot regard either the presence or absence of the tufts on femora i. and ii., or the greater or less development of the sternal tubercles, as of any specific importance in this genus, for I have numerous examples before me which present only a very slight tubercle and yet have well-pronounced tufts of hair on femora i. and ii.

Nor can one regard the presence of cephalic tubercles as a character of specific importance, for I have before me [*cf.* Ann. & Mag. Nat. Hist. (7) vii. p. 327] several examples with the tubercles varying in size from nearly obsolete to stout conical protuberances.

## Subfam. *ARGYOPINÆ.*

The species comprised under this heading differ from the Nephilinæ and the Araneinæ in having the posterior row of eyes strongly procurved. The legs are long, as in *Nephila*, but the carapace is flattened; while the vulva of the female and palpus of the male are more developed. The web is similar in general respects to that of other orb-weaving Argyopidæ; but a characteristic feature is the attitude which the spider assumes when resting in the centre. In the case of *A. argentata* the legs are stretched out in pairs in the form of a cross, each pair lying on a long, narrow, zigzag band of thin silk, probably for the sake of protection from Hymenoptera and other enemies, though it is difficult to suggest what the spider represents when in this position, possibly a bird's-dropping.

In other cases the silken band lies in a straight line, interrupted in the middle, down the centre of the web.

The genera represented in the Central-American fauna may be distinguished by the following characters:—

GENERA.

| | |
|---|---|
| i. Central eyes of anterior row, in the female, much further from the laterals than from eath other. | |
| *a*. Vulva of female divided by a septum into a pair of equal concavities. | |
| 1. Abdomen scalloped or lobate on the sides . . . . . | ARGYOPE, Aud. in Sav. |
| 2. Abdomen more or less evenly rounded on the sides . . . . . | METARGYOPE, gen. nov. |
| *b*. Vulva of female not divided by a septum, but presenting a long, broad, convex process, its apex compressed-spatuliform, with recurved margins, having a single circular cavity, or orifice, at its base beneath . . . . . | MIRANDA, C. L. Koch. |
| ii. Eyes of anterior row almost equidistant . . . . . | GEA, C. L. Koch. |

## ARGYOPE.

*Argyope*, Audouin, in Savigny's Egypt, Araign. (1st edit.) p. 121 (1826).

Type *A. sericea* (Oliv., 1789) = *A. lobata* (Pallas, 1782) (sec. auct.). Europe.

Although the type of *Argyope* differs somewhat from the *A. argentata* of the Western Hemisphere, I have left the latter for the present in the same genus. It can be at once recognized from other Central-American forms by the lobate margin of the abdomen, and by the form of the vulval orifice, which is divided into two lateral concavites by a broader or narrower septum. The males of the two species recorded may be separated as follows:—

*Males.*

| | |
|---|---|
| *a*. Spiraloid spine of palpal bulb constricted towards the apex, with a conspicuous barb on each side. No sharp cusp projecting in the middle of the spiral curve . . . . . | *argentata*, Fabr. |
| *b*. Spiraloid spine not constricted towards the apex, but with a low cusp in the middle and a small barbule near the apex. A sharp black cusp projects from the middle of the spiral curve . . . . . | *blanda*, O. P.-Cambr. |

### 1. **Argyope argentata.** (Tab. XLII. figg. 25, ♂; 26, 26 *a–c*, ♀.)

*Aranea argentata*, Fabr. Ent. Syst. ii. p. 414[1].

*Epeira argentata*, Walck. Ins. Apt. ii. p. 115, t. 18. fig. 3 (♀)[2].

*Argiope argentata*, McCook, Amer. Spid. iii. p. 220, t. 16. figg. 2, 2 *a–f* (♂), 1, 1 *a–d* (♀)[3]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 257[4]; Marx, Proc. U.S. Nat. Mus. xii. p. 541[5]; Simon, P. Z. S. 1897, p. 873[6].

*Argiope argenteola,* McCook, Amer. Spid. i. p. 108[7].
*Argiope fenestrinus,* C. L. Koch, Die Arachn. v. p. 39, t. 155. fig. 361 (♀)[8].

*Hab.* North America[3 5 7].—Mexico, Tepic (*fide Banks*[4]), Chilpancingo, Amula, Tierra Colorada (*H. H. Smith*); Guatemala (*Sarg*); Costa Rica, Esmeralda (*Biolley*); Panama, Volcan de Chiriqui (*Champion*).—Brazil[2]; Antilles, St. Vincent[6], Martinique[2].

2. **Argyope blanda.** (Tab. XLIII. figg. 1, 1 *a*, ♂.)

*Argiope blanda,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 267, t. 37. figg. 2, 2 *a–f* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 4 millim.

*Hab.* Guatemala (*Sarg*[1]).

## METARGYOPE, gen. nov.

Type *M. trifasciata* (Forskål). Neotropical region.

The species which are referred to this genus are those in which the abdomen is not lobate and the vulva is divided by a septum. Two groups are recognizable, those without a shoulder protuberance and those with one on each side.

1. **Metargyope trifasciata.** (Tab. XLIII. figg 2, ♂; 3, 3 *a*, *b*, ♀.)

*Aranea trifasciata,* Forskål, Descr. Animalium, etc. p. 86 (1775)[1].
*Epeira argyraspides,* Walck. Ins. Apt. ii. p. 110[2]; Abbot's Georgian Spiders, no. 156 (♀)[3].
*Epeira latreilla,* Walck. loc. cit. p. 108[4].
*Epeira mauricia,* Walck. loc. cit. p. 108[5].
*Epeira fasciata,* Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 468[6]; Spid. U.S. p. 107, t. 12. fig. 8 (♀)[7].
*Epeira webbii,* Lucas, Hist. Canaries, Arachn. p. 38, t. 6. fig. 5 (♀)[8].
*Epeira flavipes,* Nicolet, in Gay's Hist. Chile, Zool. iii. p. 493[9].
*Argiope transversa,* Emerton, Trans. Conn. Acad. Sci. vi. p. 330, t. 24. fig. 20 (♀)[10]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 256 (♀)[11].
*Argiope argyraspis,* McCook, Amer. Spid. iii. p. 219, t. 15. figg. 10, 11, 12, t. 16. fig. 4 (♂), t. 15. figg. 7, 8, 9, t. 16. figg. 3, 3 *a*, *b* (♀)[12].

*Hab.* North America[3 7 10 12].—Mexico, Orizaba (*fide Banks*[11]; *H. H. Smith*); Guatemala (*Mus. Brit.*; *Sarg*); Costa Rica, San José (*Sarg*).—Lower Amazons (*F. P.-C.*); Chili[9]; Atlantic Is.[8]; Mauritius[4 5].

This species somewhat resembles *Miranda bruennichii,* Scop., and is found—in Madeira, at all events—with it. *M. trifasciata* may be easily distinguished by the form of the vulva, that of *M. bruennichii* being similar in shape, except that it is shorter and broader, to that of *M. cophinaria*; while the vulva of *M. trifasciata* is divided by a thin septum, its upper margin being broad and rounded, incurving below and behind into a pair of equal cavities.

The bulb of the male palpus has a lower spiraloid lamina, with a spirally curved

spine lying closely within its concavity. This spine is simple throughout, not barbed, except that it has a minute barbule towards the apex.

## MIRANDA.

*Miranda*, C. L. Koch, Deutsch. Ins. (Panzer) Heft 128. 14 (1835).

Type *M. transalpina*, C. L. Koch, = *Aranea bruennichii*, Scopoli (sec. auct.). Europe.

The species of this genus, which includes the well-known *M. bruennichii* (Scopoli) and *M. cophinaria* (Walckenaer), are distinguished at once, at least in the female sex, by the shape of the vulval orifice, this latter forming a single, deep, circular concavity, not divided by a septum, lying below a long scape. Only one species occurs, so far as at present known, in the Western Hemisphere, and this is abundant in North and Central America.

### 1. **Miranda cophinaria.** (Tab. XLIII. figg. 4, 4 *a*, ♂; 5, 5 *a–c*, ♀.)

*Argyope cophinaria*, Walck. Ins. Apt. ii. p. 109[1]; Abbot, Georgian Spiders, fig. 151[2]; McCook, Amer. Spid. iii. p. 217, t. 15. figg. 5, 6, t. 16. figg. 6, 6 *a* (♂), t. 15. figg. 1–4, t. 16. figg. 5, 5 *a–c* (♀)[3].

*Argiope cophinaria*, Marx, Proc. U.S. Nat. Mus. xii. p. 541[4].

*Epeira ambitoria*, Walck. loc. cit. p. 112[5].

*Nephila vestita*, C. L. Koch, Die Arachn. v. p. 35, t. 153. fig. 358[6].

*Epeira riparia*, Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 468[7]; Spid. U.S. p. 106, t. 12. fig. 5 (♀)[8]; Cragin, Bull. Washb. Coll. i. no. 4, p. 149[9].

*Argiope riparia*, Emerton, Trans. Conn. Acad. Sci. vi. p. 329, t. 34. fig. 19[10].

*Argiope personata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 110, t. 14. figg. 14, 14 *a–d* (♀)[11]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 257[12].

*Argiope godmani*, O. P.-Cambr. loc. cit. p. 236, t. 37. figg. 8, 8 *a–f* (♀)[13].

Types, ♀, of *A. personata* and *A. godmani*, in coll. Godman & Salvin. Total length 28–30 millim.

*Hab.* North America[1–8 9 10].—Mexico, Acapulco (*H. H. Smith*[11]), Tepic, San Miguel de Horcasitas (*fide Banks*[12]); Guatemala, Guatemala city (*Stoll*[13]).

The spiders belonging to *Miranda* and the allied genera vary very much in the coloration of the legs. These latter are, for instance, brown, with black annulations in *M. personata* (var.), and entirely jet-black in *M. godmani* (var.).

The vulva of the female of *M. cophinaria* is produced into a long scape, compressed-spatuliform towards the apex, the margin somewhat reflexed, having a single circular orifice at its base beneath. The bulb of the palpus of the male has two long, broad, conspicuous laminæ, converging at their apex, the tip of the upper lamina lying on the concavity of the lower (probably variable in this respect), together giving the bulb a forcipated appearance. For the habits of this abundant species, see McCook [Amer. Spid. vols. i. & ii.].

## GEA.

*Gea*, C. L. Koch, Die Arachn. x. p. 101 (1843).

Type *G. spinipes*, C. L. Koch. Asia.

This genus differs (sec. Simon) from *Argyope* in having the four anterior eyes almost equidistant, whereas in the latter the centrals are much nearer together than to the laterals. One species only has been recorded from Central America.

### 1. Gea heptagon.

*Epeira heptagon*, Hentz, Journ. Bost. Soc. Nat. Hist. vi. p. 20, t. 3. figg. 5 (♀), 6 (♂) (1850) [1]; Spid. U.S. p. 122, t. 14. figg. 5 (♀), 6 (♂), t. 18. fig. 72 (♀) [2].

*Gea heptagon*, Keyserl. Spinn. Amer., Epeiridæ, p. 76, t. 3. figg. 58, 58 *a*, *b* (♀) [3]; McCook, Amer. Spid. iii. p. 208, t. 12. figg. 8, 8 *a–c* (♀) [4].

*Hab.* North America [1 2 4], Southern United States [3].—Guatemala (*fide Peckham* [3]). —South America, Brazil [3].

### Subfam. *ARANEINÆ*.

The table given for the separation of the subfamilies of the Argyopidæ (*anteà*, pp. 412, 413), based on E. Simon's work (Hist. Nat. des Araign. 2nd edit.), must be regarded as purely tentative. The character quoted for distinguishing the Tetragnathinæ from the Metinæ and Araneinæ, for instance, viz. the absence of a boss at the base of the mandible, is not reliable, for in some species of *Tetragnatha* it is evidently present. In many other respects also Simon's work is entirely misleading: on pp. 790, 795 (*op. cit.* i.) he places *Epeira illicita*, O. P.-Cambr., under *Larinia*, a genus of which he says, "coxæ maris muticæ"; *E. illicita*, however, possesses a well-developed hook on coxa i., and falls quite naturally into his own genus *Eustala* (*loc. cit.* p. 795). Again, on the same page, Simon places *Epeira vegeta*, Keys., of which the type is before me, under *Acacesia*: the male of this species has no long spines under tibia ii., and the "uncus vulvæ" of the female is not "postice directus," but "antice directus," and also falls quite obviously under *Eustala*. Of *Mangora* Simon says "coxæ maris muticæ," whereas there is in the type-species and all others known to me a well-developed hook on coxa i.

*Hentzia basilica*, McCook, he places under *Cyrtophora*: this species, if it be congeneric with *Argyope trivittata*, as I have no reason for doubting, does not belong to *Cyrtophora*, but falls more naturally between *Meta* and *Leucauge*, for it has no coxal hook in the male, a character which is well marked in *Cyrtophora*.

So, too, the removal of *Cyrtophora* (type *C. opuntiæ*) from the genus *Araneus*, based, at least as it stands at present, on the separation of the lateral eyes, cannot be supported. The separation of the lateral eyes is very variable in species of *Araneus* otherwise obviously allied.

It is difficult to understand why *Turckheimia walckenaeri*, O. P.-Cambr., and *Cyclosa*

*lacerta*, O. P.-Cambr., are placed under *Araneus*, while *T. nodosa*, O. P.-Cambr., is referred to *Cyclosa*. Both *T. nodosa* and *T. walckenaeri* present most distinctly the very character by which the Cycloseæ are separated as a subfamily from the Araneæ, viz. the division of the cephalic region, in the female sex, from the thoracic, by "un profond sillon entier et semicirculaire," and they are at any rate congeneric with *T. nodosa* if this character be any criterion.

With regard to the present characterization of the various groups of the subfamily Araneinæ, it must be treated as merely provisional, until a more complete examination can be made of the genera and species from other parts of the world. Furthermore, it is almost impossible to judge of the generic affinities of many of the species unless examples of both sexes are available for examination. I have been compelled, therefore, to separate those that fall into distinct genera, and to place the other species at the end. The name *Aranea* now takes the place of *Epeira*.

There seems to be no reason to doubt that the Araneinæ will admit of a perfectly natural classification into generic groups when some arachnologist has time to devote himself to an exclusive study of this enormous subfamily.

There are no species in the collection before me which, so far as I can judge, fall into either of the groups of which *Aranea diadema*, Linn., and *Epeira cornuta*, Linn., are types, and therefore the generic names *Aranea* and *Epeira* do not appear in connection with the arrangement here adopted for the Central-American spiders.

The following table, a separate one being required for each sex, gives the characters of all the genera I have been able to distinguish :—

### Genera.

#### *Males.*

A. Patella of pedipalp with two spines at apex.
  *a*. Coxa i. and femur ii. without hook or groove respectively.
    $a^1$. Coxa and femur of pedipalp without conical spur and ridge respectively . . . . . METEPEIRA, gen. nov.
    $b^1$. Coxa and femur of pedipalp with conical spur and ridge respectively . . . . . DREXELIA, McCook.
  *b*. Coxa i. and femur ii. with hook and groove respectively.
    $a^2$. Lateral eyes situated on a prominent tubercle, projecting forwards well in advance of the anterior margin of the mandible. Genital bulb without a large cymbium on its inner side . . . . . ERIOPHORA, Simon.
    $b^2$. Lateral eyes not situated on a prominent tubercle. Genital bulb with a large cymbium on the inner side.
      $a^3$. Clavis of genital bulb with a characteristic lateral spur, but not distinctly bifid . . . . . NEOSCONA, Simon.
      $b^3$. Clavis of genital bulb distinctly bifid . . . . . NEOSCONELLA, gen. nov.

B. Patella of pedipalp with one spine only at the apex.
  $a^4$. Tibia iii., in both sexes, with a tuft of cilia on the anterior basal side . . . . . MANGORA, O. P.-Cambr.
  $b^4$. Tibia iii. without a tuft of cilia on anterior basal side.
    $a^5$. Coxa i. and femur ii. without hook and groove respectively. Anterior row of eyes strongly procurved . . . . . MARXIA, McCook.
    $b^5$. Coxa i. and femur ii. with hook and groove respectively. Anterior row of eyes straight or slightly recurved.
      $a^6$. Tibia ii. with a stout apophysis about the middle, bearing a pair of spines at its apex . . . . . VERRUCOSA, McCook.
      $b^6$. Tibia ii. without a stout central apophysis.
        $a^7$. Central quadrangle of eyes not narrower behind.
          $a^8$. Posterior centrals two diameters apart; larger than the anterior centrals . . . . . WIXIA, O. P.-Cambr.
          $b^8$. (The male sex is not known.) . . . . . SALASSINA, Simon.
        $b^7$. Central quadrangle of eyes narrower behind. Posterior centrals one diameter or less apart, smaller than the anterior centrals.
          $a^9$. Eye-groups very prominent, lateral groups situated on prominent tubercles, projecting forwards beyond the anterior margin of the mandible.
            $a^{10}$. Tibia ii. much incrassate, bearing on the inner side a double row of stout spines with five or six long spines on the underside. Femora iii. and iv. with a series of five or six spines beneath . . . . . PARAWIXIA, gen. nov.
            $b^{10}$. Tibia ii. scarcely at all incrassate, bearing a single series of three fine spines on both the inner and under sides. Femora iii. and iv. without any spines, or one or two on femur iii. . . . . CYCLOSA, Menge.
          $b^9$. Eye-groups not very prominent, lateral groups not projecting forwards beyond the anterior margin of the mandible.
            $a^{11}$. Abdomen with shoulder, lateral and apical cusps . . WAGNERIA, McCook.
            $b^{11}$. Abdomen without cusps.
              $a^{12}$. Tibia ii. with distinctly specialized holding-spines; the segment itself somewhat incrassate.
                $a^{13}$. Specialized spines on the inner side of tibia ii. not arranged in series, but with two or more spines towards the base, one or two very long curved central spines on the inner side, and two or more shorter, stouter, curved spines on the underside . . . . . ACACESIA, Simon.
                $b^{13}$. Specialized spines on the inner, side of tibia ii. arranged in a more or less definite series . . EUSTALA, Simon.

$b^{12}$. Tibia ii. not incrassate nor with any specialized holding-spines . . . . . METAZYGIA, gen. nov.

(There are also numerous other species which fall under this section; but since it is impossible at present, owing to the absence of one sex or the other, to deal with them satisfactorily from a generic point of view, I leave them under the name *Aranea*.)

*Females.*

A. Lower margin of fang-groove with five teeth, the fourth smaller. Sternum at least one-half longer than broad . . . . . MARXIA.

B. Lower margin of fang-groove with three teeth only. Sternum not or scarcely longer than broad.

*a*. Tibia iii. with a tuft of cilia on the anterior basal side . . . . MANGORA.

*b*. Tibia iii. without any tuft of cilia.

$a^1$. Protarsus and tarsus i. together longer than tibia and patella i. METEPEIRA.

$b^1$. Protarsus and tarsus i. together not longer than tibia and patella i.

* Femora i.–iv. without any series of spines beneath.

$a^2$. Posterior central eyes not larger than the anterior centrals.

$a^3$. Tibiæ i. and ii. furnished with spines beneath.

$a^4$. Scapus of vulva directed forwards . . . . . EUSTALA.

$b^4$. Scapus of vulva directed backwards.

$a^5$. Scapus fused to basal portion; no lateral sclerites . ACACESIA.

$b^5$. Scapus not fused to basal portion; lateral sclerites present . . . . . DREXELIA.

$b^3$. Tibiæ i. and ii. without spines beneath.

(*a*) Cephalic region not separated from the thoracic portion by a deep semicircular groove.

$a^6$. Central quadrangle of eyes not narrower behind . WAGNERIA.

$b^6$. Central quadrangle of eyes narrower behind . . . NEOSCONELLA.

(*b*) Cephalic region distinctly separated from the thoracic region by a deep semicircular groove.

$a^7$. Central quadrangle of eyes not narrower behind. Vulva without a free scapus . . . . . SALASSINA.

$b^7$. Central quadrangle much narrower behind. Vulva with a free scapus . . . . . CYCLOSA.

$b^2$. Posterior central eyes larger than the anterior centrals . WIXIA.

** Femora i.–iv. with a single (or in i. and ii. in some cases a double) series of spines beneath.

$a^8$. Abdomen with cusps or tubercles.

$a^9$. Protarsi i.–iv. without spines beneath. Scapus of vulva not fused to the base, but with lateral sclerites on each side . . . . . VERRUCOSA.

*b*⁹. Protarsi i.–iv. with spines beneath. Scapus of vulva more entirely fused to the base; lateral sclerites absent . . . . . PARAWIXIA.

*b*⁸. Abdomen without cusps or tubercles.

*a*¹⁰. Scapus of vulva fused to the basal portion; lateral sclerites absent . . . . . NEOSCONA.

*b*¹⁰. Scapus of vulva not fused to the basal portion; lateral sclerites present . . . . . ERIOPHORA.

## METEPEIRA, gen. nov.

Type *M. spinipes*, sp. n. Central America.

♂. No hook on coxa i. and no groove on femur ii. Coxæ and femora of pedipalps without a coniform spur or ridge. Tibia ii. not incrassate nor with specialized spines. Patella of pedipalps with two apical spines. ♂ and ♀. Posterior central eyes two-thirds of a diameter apart, slightly smaller than the anterior centrals. Central quadrangle slightly narrower behind; anterior eyes one and one-eighth of a diameter apart. Posterior row slightly recurved; laterals one-fourth of a diameter apart, distant from the posterior centrals nearly twice the space occupied by these latter. Boss at base of mandible very slight. Legs clothed with numerous long spines; femur i. presenting two rows of long spines beneath and numerous long spines on the inner side. Protarsus and tarsus i. longer than tibia and patella i. Sternum scarcely longer than broad. Upper and lower margins of fang-groove furnished with three teeth. Colulus present.

In the male the bifid falciform process or "*unca*" of the palpal bulb is characteristic of the group. The palpus exhibits also the tarsal hook at the base of the tarsal sheath.

In the female the vulva has a slender central scapus, recurved at its apex.

The species referred to this genus form a small distinct group, which has more affinities with the Metinæ than with any other of the present subfamily. The length of the protarsus and tarsus of leg i. brings them nearer also to the Argyopinæ. Owing to the necessity of publishing the diagnoses of subfamilies and genera before the material has been completely worked out in detail, the classification may need considerable modification.

### *Males.*

1. Femur i. with a clustered group of seven or eight long spines on the apical half, in front; four fine dorsal spines and a series of four or five very fine spines beneath. Femur ii. with one or two spines or a single series of four or five spines beneath. Shaft of unca of palpus as long or longer than the blade, more slender, the latter making a wider sweep. Lamina 2 of bulb smaller and more remote from the denticules of the anterior lobe.

*a*. Shaft of unca less slender, not so long in proportion, the blade taking a narrower sweep. Femur i. without a long single series of spines beneath, besides the cluster in the apical half. Femur ii. with a single spine, or sometimes two, beneath . . . . . *labyrinthea*, Hentz.

*b*. Shaft of unca much more slender and longer in proportion, the blade taking a much wider sweep. Femur i. with a single long series

(12–13) of spines beneath, besides the apical cluster. Femur ii. with a single series of four or five short spines . . . . . *uncata*, sp. n.

2. Femur i. with a double series of stout, long spines beneath, extending from the base to the apex, besides a cluster of long spines in front on the apical half. Femur ii. with a long series (9–10) of stout spines beneath. Shaft of unca much shorter than the blade, both of them very broad, and striate throughout. Lamina 2 of palpal organs larger and lying close above and adjacent to the denticules of the anterior lobe . . . . . *spinipes*, sp. n.

*Females.*

1. Scapus of vulva, seen from below, much narrower at the base, and throughout, not abruptly dilate.
   *a*. Femur i. with three or four dorsal spines only. Femur ii. entirely devoid of spines beneath. Leg i. not more than three times longer than the carapace. Scapus of vulva more slender, the portulæ lying more separate from its base . . . . . *labyrinthea*.
   *b*. Femur i. with a series of 3 inner spines, 6 infero-lateral, and 11–12 spines below. Femur ii. with two series of 3–4 and 5–6 spines beneath. Leg i. more than four times longer than the carapace. Scapus of vulva stouter, the portulæ lying more beneath its base . *spinipes*.
2. Scapus of vulva, seen from below, much broader at its base, and abruptly dilate towards the apex . . . . . *incrassata*, sp. n.

## 1. **Metepeira labyrinthea.** (Tab. XLIII. figg. 6, 6 *a*, ♂; 7, 7 *a–e*, ♀.)

*Epeira labyrinthea*, Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 471, t. 31. fig. 3 (♀)[1]; Spid. U.S. (ed. Burgess), p. 111, t. 13. fig. 3 (♀)[2].

? *Epeira labyrinthea*, Emerton, Trans. Conn. Acad. Sci. vi. p. 314, t. 36. fig. 11 (♂), t. 34. fig. 8 (♀)[3]; McCook, Amer. Spid. iii. p. 171, t. 7. figg. 11, 11 *a* (♂), 10, 10 *a*, 12, 12 *a* (♀)[4]; Keyserling, Spinn. Amer., Epeiridæ, p. 215, t. 10. figg. 160, 160 *a* (♀), 160 *b*, *c* (♂)[5]; Simon, P. Z. S. 1897, p. 874[6]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 254[7].

Total length, ♀ 7–10, ♂ 4 millim.

Carapace deep brown, with the ocular area yellow. Mandibles, maxillæ, and sternum brown, the latter with a central yellow band. Coxæ, trochanters, and the other segments of the legs dull yellow, with the apices of all slightly suffused with brown. Abdomen dull yellow-grey, with a central folium very similar to that present in the two next species, but the second diverticulum is not so much dilated as in *M. spinipes*, nor so pointed as in *M. incrassata*, but usually rounded; sides mottled with rich brown; ventral area black, with a central pale line and two spots in front of the spinners. The legs are much shorter in proportion to the carapace than in *M. spinipes*, about one-fourth longer than the whole body. Femur i. with 3–5 spines in the apical half, ii. without spines. *Vulva* of the same type as in the next two species, but the scapus is narrower than in *M. spinipes* and not dilate apically as in *M. incrassata*.

♂. Carapace deep brown, ocular area slightly paler; mandibles and sternum brown, the latter with a central yellow line. Legs yellow, apical two-thirds of femora i., ii., iv. and apex of iii., patella and apex of tibia, protarsus, and tarsus brown. Abdomen entirely black, with the folium and anterior ⩘-shaped marks outlined in white; lateral and ventral areas black, the latter with the usual central line and pair of white spots before the spinners. Femur i. of legs with 3 dorsal and a cluster of 5–7 long spines on

the apical half, and a series of one or two (or more) smaller bristles beneath. Palpal organs similar in general character to those of the other species of the special group, exhibiting a double-bladed reap-hook-like process (unca) on the underside of the bulb, with a partially concealed embolus lying under the apices of the blades; apically there is a conspicuous, rounded, elongate lobe, deeply indentate on its outer margin, and exhibiting at this point a cluster of sharp black denticules. Close above this lobe and basally lies a thin yellow lamina, with three serrations on one side and one on the other, and adjacent to its base a second small oval triangular sclerite (lamina 2). The form of the unca is characteristic: in the present species the shaft is almost as long as the blade, which takes a much less wide curve than in *M. uncata*, and is stouter. The shape and position of lamina 2 of the bulb serves also to separate *M. labyrinthea* from *M. spinipes*.

*Hab.* North America [3 4 5], N. Carolina [1 2], California [7].—Mexico, Tepic, Orizaba, San Miguel de Horcasitas (*fide Banks* [7]), Amula, Orizaba, Chilpancingo, Atoyac, Teapa (*H. H. Smith*); Guatemala, Antigua (*Stoll*); Panama, Bugaba (*Champion*).—South America, Venezuela [4]; Antilles [4], Barbados [4], St. Vincent [6].

Although *M. labyrinthea* is one of the commonest and best known of Hentz's species, American arachnologists have never identified it with any certainty. They have not yet given an accurate description of the species, nor are their figures sufficiently detailed for purposes of identification. The same remarks apply also to Keyserling's work [5]. Fortunately, however, a male and a female example from North Carolina, whence the type was obtained, are before me, and they are identical with those from Central America in our collection. McCook's figures (*loc. cit.* t. 7. figg. 10, 11) seem to agree better with *M. spinipes*; and his fig. 12 may represent the true *M. labyrinthea* or *M. incrassata*. The example referred to *M. labyrinthea* by Simon, from St. Vincent, is an immature female, and is now before me.

The very narrow scapus of the vulva in the female, the form of the unca in the male, and the comparative shortness of the legs and scarcity of spines on femora i. and ii. in both sexes, are the characters to be noted.

### 2. **Metepeira uncata,** sp. n. (Tab. XLIII. figg. 8, 8 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

♂. Carapace brown, caput paler; mandibles and sternum brown, the latter with a faint pale central line behind. Legs coloured as in *M. labyrinthea*. Abdomen white, mottled with brown, with the usual central folium, the six ⟋⟍-shaped marks being very distinct. Femur i. spinulated as in *M. labyrinthea*, but with a long series of spines (12 or 13) on the outer side beneath; femur ii. with a series of 6 or 7 spines beneath. Palpal organs similar to those of *M. labyrinthea*, but the shaft of the unca is very long and slender, rather longer than the blade, which takes a much wider sweep and is more slender throughout. The same characters will serve to distinguish it from *M. spinipes*.

*Hab.* Guatemala, Santa Ana (*Sarg*).

### 3. **Metepeira spinipes,** sp. n. (Tab. XLIII. figg. 9, 9 *a–f*, ♂; 10, 10 *a–d*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 9, ♀ 12 millim.

♀. Carapace dull orange-brown, mottled with darker brown. Mandibles, sternum, and coxæ of legs brownish-black, the sternum with or without a central basal yellow line. Femora of legs orange, darker at the apex above; patellæ i. and ii. orange above, dark below; tibiæ, protarsi, tarsi, and patellæ

iii. and iv. yellow, more or less spotted with black; tibiæ with a conspicuous black apical annulus. Abdomen dull yellow above, mottled with brown, with a well-marked central folium, of which the second diverticulum is conspicuously dilate at its apex on each side; ventral surface black, with the central white line behind the genital rima, and the pair of white spots in front of the spinners.

♂. Colour similar, but paler, on the legs at any rate, the femora, however, being darker.

Femora i. and ii. in the female with two series of spines beneath, in the male more numerously spined.

The characters drawn from the spinulation of the legs are applicable only to the adults in both sexes.

The unca of the palpus is much broader throughout, but especially at the base, than in the two allied species, and the blade takes a narrower sweep. The small sclerite (lamina 2) near the base of lamina i. is longer, and lies much more adjacent to the denticules on the anterior lobe of the bulb.

The vulva of the female is characteristic, the scapus (though not abruptly dilate as in *M. incrassata*) being broader throughout than in *M. labyrinthea*, while the walls of the portulæ are less prominent and not so distinctly separated on their inner side from the base of the scapus as in the latter species.

*Hab.* MEXICO, Patzcuaro, Amula, Amoquileca, city of Mexico (*H. H. Smith*).

### 4. **Metepeira incrassata,** sp. n. (Tab. XLIII. figg. 11, 11 *a–e*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 10 millim.

♀. Carapace dull yellow, the central area often deep brown. Mandibles, coxæ of legs, and sternum deep brown, the latter with or without a central yellow basal line. Legs yellow, femora often suffused apically with brown; tibiæ with a more or less conspicuous dark apical ring. Abdomen bright ochre-yellow, mottled and spotted with brown, the central folium not well defined, especially in front, the second diverticula on each side not dilate; ventral area black, with the usual central white line and the two spots in front of the spinners. The specimens described have the abdomen more globular than in *M. spinipes*. Legs i. and ii. are much shorter in proportion, scarcely one-fourth longer than the whole body. Femur i. has 3 or 4 spines only in the apical half, femur ii. being entirely devoid of spines. The scapus of the vulva is abruptly dilate towards its apex, seen from below.

*Hab.* MEXICO, Jalapa (*F. D. G.*); GUATEMALA (*Sarg*).

## DREXELIA.

*Drexelia,* McCook, Proc. Acad. Phil. 1892, p. 127; Amer. Spid. iii. p. 248 (1893).
? *Larinia,* E. Simon, Arachn. Fr. i. p. 115 (1874).

Type of *Drexelia, D. directa* (Hentz), North America; of *Larinia, L. dufouri,* E. Simon, Europe *.

### Generic characters drawn from *D. directa* (Hentz).

♂. Coxa i. without hook. Femur ii. without groove. Patella of palpus with two spines. Maxilla and base of femur of palpus with a well-developed cone and ridge; eyes as in female. ♀. Carapace not convex behind. Posterior row of eyes slightly recurved, laterals subequal. Posterior central eyes almost in contact, much smaller than the anterior centrals, which are at least two diameters apart. Central

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* McCook in 1893 (Am. Spid. iii. p. 249) definitely cited *L. dufouri* as the type of *Larinia.* Simon did not cite *L. lineata* as the type until 1895. Not having a specimen of *L. dufouri* before me, it is impossible to say whether *Drexelia* is truly congeneric with *Larinia.* The species before me, *Epeira tetragnathoides,* O. P.-Cambr., is, I have little doubt, that which McCook identifies as *Epeira directa,* Hentz; and it is safer to retain the name *Drexelia* for the present.

As to *Larinia,* the species, *Cyclosa fissicauda,* O. P.-Cambr., and *Epeira illicita,* O. P.-Cambr., quoted by Simon as falling under this genus, directly contradict in many respects the characters given in the diagnosis. *E. illicita* has a coxal hook in the male, and *C. fissicauda* has the carapace very convex behind, amongst other important differences.

quadrangle much narrower behind, scarcely more than half as wide as in front; broader than long. Patella of palpus with two anterior spines. Femora without rows of spines beneath. Vulva with a short, broad scapus. The tarsal sheath of the palpal bulb of the male has a chitinous hook. Colulus present.

### 1. **Drexelia directa.** (Tab. XLIII. figg. 12, 12 *a*, ♂; 13, 13 *a*, *b*, ♀.)

*Epeira directa*, Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 478, t. 31. fig. 21 (♀)[1]; Spid. U.S. p. 119, t. 13. fig. 21 (♀)[2].

*Drexelia directa*, McCook, Proc. Acad. Phil. 1892, p. 127[3]; Amer. Spid. iii. p. 249, t. 6. figg. 11, 11 *a* (♂), 10, 10 *a*, *b*, t. 22. figg. 3, 3 *a*–*e* (♀)[4].

*Larinia directa*, Banks, Ent. News, v. p. 8[5]; Proc. Calif. Acad. Sci. (3) i. p. 257[6].

*Epeira tetragnathoides*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. 16, 18, t. 7. figg. 9, 9 *a*, *b* (♂), 10, 10 *a*, *b* (♀)[7].

*Epeira intercisa*, O. P.-Cambr. loc. cit. p. 18, t. 5. figg. 11, 11 *a*, *b* (♂)[8].

*Epeira deludens*, Marx, Spinn. Amer., Epeiridæ, p. 261, t. 13. figg. 195, 195 *a* (♀), 195 *b*, *c* (♂)[9].

Type ♂, gynetype ♀, of *E. tetragnathoides*, type ♂ of *E. intercisa*, in coll. Godman & Salvin. Total length, ♂ 4·5, ♀ 5·5–8 millim.

*Hab.* North America[1 2 4].—Mexico, Tepic (*fide Banks*[6]); Guatemala[9], Sachenmax, Sakiyac, Cumbre de San Joaquin (*Sarg*[7]); Panama, Bugaba (*Champion*[7 8]).

McCook is the first author who has given a recognizable description and figure of *Epeira directa*, Hentz, and I have no doubt that he is correct in regarding *E. tetragnathoides*, O. P.-Cambr., as identical with it. The male has no coxal hook on leg i., nor femoral groove on leg ii.; but it has the maxillary cone and chitinous ridge on the base of the femur of the palpus, and two long curved spines on the anterior margin of the patella.

### 2. **Drexelia bellona.**

*Larinia bellona*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 257, t. 15. fig. 6 (♂ ♀)[1].

Type ♂, gynetype ♀, in coll. Calif. Acad. Sci. Total length, ♂ 4, ♀ 7 millim.

*Hab.* Mexico, Tepic[1].

This species is probably distinct from *E. directa*, but Banks's figures are not sufficiently clear to enable one to suggest in what particular structural detail the difference might be found. This author says, however, that it may be readily distinguished by its shorter abdomen, which is twice as long as wide.

## ERIOPHORA.

*Eriophora*, E. Simon, Hist. Nat. Araign. i. p. 261 (1864).

Type *E. ravilla* (C. L. Koch). North America.

If McCook is correct in his identification of *Epeira ravilla*, then this species is congeneric with *E. purpurascens*, O. P.-Cambr., and the other allied forms enumerated

below. I have here selected it as the type of Simon's genus *Eriophora*, but as *E. ravilla* is unknown to me, the characters have been taken from *E. purpurascens*.

♂. Coxa i. with a hook and femur ii. with a groove; a tubercle above coxa i. Coxa and femur of pedipalp with a coniform spur and chitinous ridge respectively. Tibia ii. incrassate, with six long spines beneath and two rows of 5–6 spines on the inner side, the apical four spines of the lower series being much stouter and more specialized. Protarsus ii. with two specialized spines at the base on the inner side. Femora i. and ii. with a single series of ten or eleven, and iii. and iv. with a double series of five or six spines beneath. Patella of pedipalp bearing two apical spines. Tarsal sheath with a very large curved lamelliform unca at its base.

Lateral eye-groups projecting forwards on a very distinct tubercle, well in advance of the anterior margin of the base of the mandible; central anterior eyes also very prominent. Posterior row of eyes recurved, anterior row distinctly recurved. Quadrangle narrower behind; posterior centrals one-fourth of a diameter apart; anterior centrals much larger, one full diameter apart. Trochanter iv. with two spines. Palpal bulb with an enormous cymbium on the inner side, a less conspicuous clavis on the outer side with the apical lamella and an embolus.

♀. Posterior central eyes half a diameter apart, much smaller than the anterior centrals, which are separated by one full diameter. Central quadrangle distinctly narrower behind, not longer than broad. Both rows recurved. Laterals one-eighth a diameter apart; anterior laterals much larger, situated on a low rounded tubercle. Lower margin of fang-groove with three, the upper with four teeth.

Legs not very spinose. Femur i. with a series of three, ii. with seven spines on the under inner side, and iii. with two or three spines beneath; iv. without spines. Protarsi i.–iv. with stout spines beneath. Carapace not raised or convex behind the eyes. Sternum slightly longer than broad. Colulus present. Patellæ i.–iv. without an apical spine, but with a short fine bristle. Vulva having the scapus, atriolum, and lateral sclerites not fused into one piece, but the scapus more or less detached, and folded back at its base, where it is strongly transversely rugulose. Abdomen without shoulder- or other tubercles.

*Males.*

A. Trochanter of leg iv. alone with one or two spines on its anterior margin. Cymbium of palpus strongly geniculate on its basal half, projecting far beyond the margin of the tarsal sheath. Protarsus ii. with two stout spines towards the base on the inner side . . . . . *purpurascens*, O. P.-Cambr.

B. Coxa as well as trochanter of leg iv. with spines. Cymbium of palpus less strongly geniculate, not projecting beyond the margin of the tarsal sheath. Protarsus ii. without basal spines on the inner side . . . . . *edax*, Blackw.

*Females.*

A. Abdomen without circular bosses (or blisters, sec. McCook) in the central dorsal line.

1. Abdomen without central cusp posteriorly. Scapus of vulva without any carina; either flat or longitudinally grooved; strongly recurved or folded back at the base.

*a*. Scapus of vulva narrower at the base and much less deeply grooved transversely (corrugated). Apical half of the scapus with a broad longitudinal groove on the underside, its extreme apex bent upwards towards the abdomen . . . *purpurascens*.

*b*. Scapus of vulva much broader at the base and more deeply transversely corrugated. Apical two-thirds of the scapus convex, or somewhat flattened beneath, without a broad longitudinal groove; its extreme apex straight, not bent upwards . . . . . *minax*, O. P.-Cambr.

2. Abdomen with a central cusp posteriorly. Scapus of vulva with a longitudinal carina in the apical half of the lower side . . *edax*.

B. Abdomen with circular bosses (or blisters) on the central dorsal line.

*a*[1]. [Type immature] . . . . . *variolata*, O. P.-Cambr.

*b*[1]. [Species not known to me] . . . . . *ravilla*, C. L. Koch.

Note.—The types of *E. variolata* and *E. bivariolata*, O. P.-Cambr., are immature, and their distinctive characters cannot be included in the above Table. I do not know *E. ravilla*, C. L. Koch, and *E. balaustina*, McCook; the latter is very probably identical with *E. minax*, O. P.-Cambr., and if so, McCook's name has priority.

## 1. **Eriophora purpurascens.** (Tab. XLIII. figg. 14, 14 *a*, ♂; 15, 15 *a–f*, ♀.)

*Epeira purpurascens*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 33, t. 7. figg. 4, 4 *a*, *b* (♂), 5, 5 *a–c* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 226, t. 11. figg. 168 *c*, *d* (♂), 168, 168 *a*, *b* (♀)[2].

*Araneus purpurascens*, E. Simon, P. Z. S. 1897, p. 873[3].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 11·25, ♀ 18 millim.

♂. Coxa i. with a hooked spur at its posterior apical margin; iv. without spines. Trochanter iv. with (usually two) spines beneath. Tibia ii. slightly sinuous, and incrassate towards the apex, with two rows of six stout spines beneath, those of the inner row quite short, of the outer much longer; the inner dorsal side with a row of five spines, the outer dorsal and outer side with two rows of three spines each. Femora i. and ii. with a single series of spines on the anterior side, iii. and iv. with a donble series of spines beneath. Protarsus ii. with short spines at its base beneath.

*Palpus*. Tarsal sheath very narrow; unca of sheath well developed. Cymbium (on the inner side) very large, strongly geniculate basally, bilobate, the outer lobe with a stout hammer-headed unca on the inner side. Clavis (on the outer side) simply rounded at its apex, without teeth. Embolus broad, and slightly hooked and sharp at the apex.

♀. Abdomen without definite central, dorsal, apical cusp, simply rounded behind. Femora i., ii. iii., iv. without a series of spines in front or beneath, but i. and ii. with a few spines on the inner side towards the apical half. Vulva without lateral sclerites (or alæ); scapus strongly recurved forwards basally, its apical portion enormously prolonged backwards, distinctly grooved transversely (but not so deeply as in *E. minax* and *E. edax*), deeply channelled dorsally towards the apex, which is bent slightly but abruptly down.

Femora clothed with bright orange-rust-red hairs. Venter with a large central triangular black patch, margined with a broad band of rust-red hairs, the lateral band extending forwards and upwards and becoming broader. In some examples the hairs are pale.

*Hab.* Mexico, Venta de Zopilote, Muxbal (*H. H. Smith*); Guatemala (*Sarg*[1]); Costa Rica, San José (*Tristan*); Panama, Bugaba (*Champion*[1]). — Venezuela; Antilles, St. Vincent[3].

### 2. **Eriophora edax.** (Tab. XLIV. figg. 1, 1 *a*, *b*, ♂; 2, 2 *a–f*, ♀.)

*Epeira edax,* Blackw. Ann. & Mag. Nat. Hist. (3) xi. p. 30 (1863)[1].

♂. General structural characters similar to those of *E. purpurascens*, except that coxa iv. bears spines (usually three) in the middle of its apical margin, as well as trochanter iv.; femora iii. and iv. do not present two such definite series of spines; tibia ii. has fewer spines in the various rows; and protarsus ii. is without stout spines at the base.

Palpus similar in general character to that of *E. purpurascens*, but the cymbium is not nearly so strongly or conspicuously geniculate. The clavis is rounded at the apex, but has two small incurving teeth.

♀. General characters as in *E. purpurascens*, but the abdomen always has a low posterior central dorsal cusp, the shoulders also being often slightly produced. The scapus is not recurved forward and the apical portion is strongly carinate above. The general coloration is so variable that it is useless to describe minutely any one variety, but it is usually as follows:—Carapace and legs dull orange, the femora not black nor clothed with rust-red hairs. Abdomen brown or clay-yellow, with a central narrow white line, and a broad ⋀-shaped folium dorsally, its apex directed backwards, reaching to the posterior apical cusp; the sides are slashed with three narrow dusky bars.

Varieties occur which are absolutely black, and there is every range of colour between these two extremes.

*Hab.* Mexico, Atoyac, Amula (*H. H. Smith*); Guatemala, Guatemala city (*Stoll*); Nicaragua, Chontales (*Janson*); Costa Rica (*Rogers*), San José (*Tristan*); Panama, Bugaba (*Champion*), Veragua (*Boucard*).—Brazil, Rio Janeiro[1].

### 3. **Eriophora minax.** (Tab. XLIV. figg. 3, 3 *a–e*, ♀.)

*Epeira minax,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 112, t. 15. figg. 1, 1 *a–d* (♀) (1893)[1].

Type, ♀, in coll. Godman & Salvin. Total length 16–20·5 millim.

*Hab.* Mexico, Ciudad in Durango (*Forrer*), Acaguizotla in Guerrero[1], Atoyac, Vera Cruz, Teapa (*H. H. Smith*).

This large species is very similar to *E. purpurascens* in general appearance and structural characteristics, but the hairs on the femora of the legs and on the ventral area of the abdomen are black, not rust-red. These hairs are, however, also modified in coloration in many examples of the former. The scapus of the vulva is much broader basally, more strongly folded back, and deeply corrugated with transverse grooves; apically it is enormously prolonged, but has not the broad groove on the lower side, nor is it apically bent upwards as in *E. purpurascens*. It is highly probable that *E. minax* is identical with *E. balaustina*, McCook, recorded by Banks from Tepic. The figures of the vulva given by McCook are, however, not sufficiently detailed for comparative purposes, and considering how close the species run, it is safer to keep the examples in the collection before me under the name they have been described in



### 4. **Eriophora variolata.**

*Epeira variolata,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 46, t. 6. figg. 14, 14 *a*, *b* (♀)[1].

*Epeira bivariolata,* McCook, Amer. Spid. iii. p. 159, t. 5. figg. 5, 5 *a*, *b* (♀), 6, 6 *a* (♂) (nec O. P.-Cambr.)[2].

? *Epeira bivariolata*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 252 [3]; Keyserling, Spinn. Amer., Epeiridæ, p. 100, t. 5. figg. 74, 74 *a* (♂) [4].

Type ♀, androtype ♂ (both immature), in coll. Godman & Salvin. Total length, ♀ 7·75, ♂ 7 millim.

*Hab.* North America [2], California [3], Florida [4], Texas [4].—Mexico, Tepic (*fide Banks* [3]); Guatemala, Chamiquin, Cubilguitz (*Sarg* [1]).

The circular "blisters," as McCook calls them, on the posterior part of the abdomen are distinct in the type of *E. variolata* now before me; but as the latter is immature, one cannot be sure that they are when adult identical with those of the *E. bivariolata* figured by McCook. Both Keyserling and McCook have applied the wrong name to this species.

## 5. Eriophora bivariolata.

*Epeira bivariolata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 27, t. 6. figg. 15, 15 *a–c* (♀) (nec McCook) [1].

Type, ♀ (immature), in coll. Godman & Salvin. Total length 8 millim.

*Hab.* Guatemala, Chamiquin, Chiacam, Cubilguitz (*Sarg* [1]).

The two examples seen of this species are not mature; they may very likely prove to be the young of *E. edax*. The spiders named *E. bivariolata* by McCook and Keyserling are referable to *E. variolata*.

## 6. Eriophora ravilla.

*Epeira ravilla*, C. L. Koch, Die Arachn. xi. p. 73, fig. 890 (♀) (1845) [1]; McCook, Amer. Spid. iii. p. 161, t. 5. figg. 7, 7 *a* (♀), 8, 8 *a* (♂) [2].

*Hab.* North America [2].—Mexico [1].

According to McCook, this species is closely allied to *E. variolata*, O. P.-Cambr., having in both sexes characteristic circular blisters (or bosses) on the abdomen. The vulval scapus in the female and the genital bulb in the male, according to McCook's figures, place the species near *E. minax* and *E. purpurascens*.

## 7. Eriophora balaustina.

*Epeira balaustina*, McCook, Proc. Acad. Phil. 1888, p. 198 [1]; Amer. Spid. iii. p. 155, t. 4. figg. 2, 2 *a–c* (♀) [2]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 252 [3].

Type, ♀, of *E. balaustina*, in coll. McCook. Total length 16 millim.

*Hab.* North America, Florida [1].—Mexico, Tepic (*fide Banks* [3]).—Antilles, San Domingo [1]; Swan I. [1].

This species is in all probability identical with *E. minax*, O. P.-Cambr., but it is safe to leave the Central-American spider under the latter name for the present. McCook's figures are insufficiently detailed for purposes of identification.

## NEOSCONA.

*Neoscona*, E. Simon, Hist. Nat. Araign. i. p. 261 (1864).

Type *N. arabesca* (Walck.). North America.

♂. Coxa i. with a hook and femur ii. with a groove; a tubercle above coxa i. Coxa and femur of pedipalp with a coniform spur and chitinous ridge respectively. Tibia ii. incrassate, especially towards the base, with four long spines set close together in the basal third on the underside longitudinally, the two anterior spines being shorter; near these are 5 or 6 short, stout, dentiform spines: on the inner side throughout its whole length are 30–40 short, stout, dentiform spines, set in two irregularly paired series, their apices directed upwards; on the upper part of the inner side are two long spines at the base, followed by two shorter spines and one much longer one; on the central dorsal line are three long spines. Protarsus ii. with two specialized spines at the base on the inner side. Femora i. with an irregular double series of spines (9–7) beneath; ii. with a double series of 10–9; and iii. and iv. with a single series beneath (variable in different species). Patella of pedipalp with two long apical spines. Tarsal sheath with a well-developed uncus at its base. Lateral eye-groups not placed on a prominent tubercle, situated behind the anterior margin of the base of the mandible. Central anterior eyes prominent, but not conspicuously so. Posterior row of eyes slightly recurved, anterior row also recurved, the centrals being nearer to the margin of the clypeus. Quadrangle slightly narrower behind, slightly longer than broad. Posterior centrals half a diameter apart; central anteriors nearly one diameter apart, the four eyes of the quadrangle being subequal. Lateral eyes almost in contact. Coxæ and trochanters ii.–iv. without spines; coxa iv. with a conical spur (absent in some species). Genital bulb large, with the various organs closely grouped, having no apparent cymbium, but a small clavis on the outer side, bearing a tooth on the anterior portion, and two other apophyses, an embolus, and a lamelliform conductor at the apex. Carapace having the anterior lateral margin on each side much developed, forming a rounded shoulder, abruptly widening out from the cephalic portion, which is gradually narrowed to the central anterior eyes: this extension of the margin is developed to meet and support the much enlarged tubercle on the base of coxa i. above and to bear the strain when in use during copulation. Sternum nearly twice as long as broad.

♀. Eyes practically the same as in the ♂; the eye-groups being much less prominent. Lower margin of fang-groove with 3, the upper with 4 teeth. Legs very spinose; femora i.–iv. with a double series of 11 or 12 spines. Protarsi i. and ii. with numerous spines beneath. Carapace not convex behind the eyes. Sternum slightly longer than broad. Colulus present. Vulva having the scapus and atriolum fused to form a single piece, more or less concave above towards the apex. Abdomen elongate-oval, without shoulder- or other tubercles. Abdominal pattern characteristic, consisting of a broad, white, triangular, anterior, central, dorsal patch, followed to the apex by a narrow, white, tapering, central band, having a series of four or five conspicuous, black, oblique, oval spots on each side.

The above diagnosis is drawn from examples which I identify as *N. vertebrata* (McCook), the female of which is identical with that of the type of *N. oaxacensis* (Keyserl.) now before me.

The vulva is of the type in which the scapus and base and lateral sclerites are fused together and infolded beneath, with a concave cochlea at its apex.

*N. theis* (Walck.) and *N. cooksoni* (Butl.) are so closely allied to the Central-American forms that I have added descriptions and figures of both for comparison.

### *Males.*

*a*. Coxa iv. with a coniform spur beneath.

*a*¹. Tibia ii. with a double, in places treble, series of from 30–40 short, stout, curved spines on the inner side. Basal portion of underside of tibia ii. with, besides the two long basal spines, a group of 7 or 8

shorter spines. The larger lobe of the apex of clavis of genital bulb broad and somewhat dilate . . . . . *oaxacensis,* Keys.

$b^1$. Tibia ii. with a double, in places single, series of from 18–20 short, stout, curved spines. Apex of larger lobe of clavis not dilate, but bluntly pointed. Basal portion of underside of tibia ii. with the two long basal spines, but without any smaller ones . . . . . *conifera,* sp. n.

*b*. Coxa iv. without a coniform spur beneath.

$a^2$. Apex of clavis of genital bulb distinctly bilobate, the two lobes formed by its apex and the lateral sharp curved spine. Tibia ii. with at least two or three long basal spines on the underside, as well as some outer marginal spines.

$a^3$. Tibia ii. straight or nearly so.

$a^4$. Tibia ii. with two or three spines only on the underside. The clasping-spines on the inner side set in a distinct series and adpressed to the segment.

$a^5$. Clasping-spines on tibia ii. approximately the same length throughout (sec. Emerton) . . . . . *benjamina,* Walck.

$b^5$. Clasping-spines on tibia ii. unequal; several longer basal spines. [*theis*, Walck.]

$b^4$. Tibia ii. with 9–10 spines on the underside in the basal two-thirds. The clasping-spines on the inner side more scattered and not adpressed to the segment . . . . . *minima,* sp. n.

$b^3$. Tibia ii. strongly curved, concave on the inner side . . . . . *arabesca,* Walck.

$b^2$. Apex of clavis not bilobate, the lateral spine being quite at the apex and slightly sinuous. Tibia ii. without spines beneath, three outer marginal ones excepted . . . . . *amulensis,* sp. n.

## *Females.*

A. Femora i., ii., iii., and sometimes iv., with a double series of spines beneath, in addition to the normal anterior median-dorsal spines. Abdomen oval-elongate.

*a*. Scapus of vulva, seen in profile, distinctly geniculate in the spatulate apical portion. Abdomen with a central scalloped white band and a series of six white spots on each side. Median ventral spot very long, the lateral spots on the genital rima round.

$a^1$. Size larger, length 12–17 mm. Femora with very conspicuous stout spines beneath. Scapus, seen in profile, straighter in the basal portion . . . . . *oaxacensis.*

$b^1$. Size smaller, length 6 mm. Femora with spiniform bristles beneath. Scapus, seen in profile, more convex in the basal portion . . . . *conifera.*

*b*. Scapus of vulva, seen in profile, strongly rounded throughout, not geniculate in the apical spatulate portion; conspicuously tuberculo-rugulose above. Spatula broad and short, broadly rounded at the apex. Abdomen with central white dentate band, without series of lateral white spots. Median ventral white spot rounded . . . . . [*cooksoni*, Butl.]

B. Femora i.–iv. almost entirely devoid of spines beneath, but with the normal anterior median dorsal spines. Abdomen triangular-oval, broad anteriorly, or uniformly oval-circular.

$a^2$. Abdomen triangular-oval, broad anteriorly.

$a^3$. Vulva, seen from above, not transversely broad at base, nor elongate-triangular. Median ventral white spot not connected with the band across the genital rima.

$a^4$. Vulva basally narrower, longer, distinctly geniculate in the spatulate apical portion. Spatula elongate, narrow, its reflexed margins connivent behind . . . . . *benjamina.*

$b^4$. Vulva basally broader, much shorter, not apically geniculate. Spatula almost circular, its reflexed margins wide apart, divergent behind . . . . . *orizabensis,* sp. n.

$b^3$. Vulva, seen from above, transversely broad at base, elongate-triangular. Median ventral spot connected laterally with the band across the genital rima . . . . . *volucripes,* Keys.

$b^2$. Abdomen uniformly oval.

$a^5$. Spatula of vulval scapus more or less strongly and marginally dilate at its base on each side, then constricted . . . . . [*theis.*]

$b^5$. Spatula of vulval scapus not or scarcely marginally dilate on each side, not constricted behind the dilatation.

$a^6$. Scapus of vulva longer; spatula much narrower where the reflexed margins blend into the base . . . . . *arabesca.*

$b^6$. Scapus of vulva shorter; spatula much broader where the reflexed margins blend into the base . . . . . *minima.*

Note.—It is quite possible that with fresh examples some of the variations in colour might be found useful for distinguishing the species; but one cannot be sure that the ventral white spots are constant. *Epeira pratensis*, Emerton, evidently belongs to this group, but having no authentic examples before me I cannot give the differential characters; his figures and description are insufficient for the purpose.

## 1. **Neoscona oaxacensis.** (Tab. XLIV. figg. 4, 4 *a–e*, ♂; 5, 5 *a–c*, ♀.)

*Epeira oaxacensis,* Keyserl. Sitzungsb. nat. Ges. Isis, Dresden, 1863, p. 121, t. 5. figg. 15, 16 (♀)[1].

*Epeira oaxensis* (sic), Keyserl. Spinn. Amer., Epeiridæ, p. 238, t. 12. figg. 178, 178 *a* (♀)[2].

*Epeira vertebrata,* McCook, Proc. Acad. Phil. 1888, p. 196, figg. 6–10[3]; Amer. Spid. i. pp. 74, 120, 248, 252, 298[4]; ii. pp. 26, 334[5]; iii. p. 151, t. 3. figg. 4 (♂), 5 (♀), t. 4. figg. 1, 1 *a–e* (♀), t. 5. figg. 4, 4 *a–c* (♂)[6]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 254[7].

Type, ♀, of *N. oaxacensis*, in Mus. Brit.; type ♂, gynetype ♀, of *N. vertebrata*, in coll. McCook. Total length, ♂ 12, ♀ 17 millim.

♂. For the general characters of this species, see the generic diagnosis. The chief specific characters to be noted are the sharp cone on coxa iv., which it shares in common with *N. conifera*; the double series of 30–40 short stout spines on the inner side, and the two long spines and seven or eight short spines on the underside, of tibia ii.; and the dilate form of the apex of the clavis of the genital bulb.

♀. Carapace yellow-brown, with central and submarginal brown bands; sternum black, with a central yellow line. Legs orange-brown; tibiæ, protarsi, and tarsi yellow, the tarsi black at the apex only, the other segments with a basal, median, and apical annulus. Abdomen elongate-oval, very variable in colour; dorsal

area brown, sometimes mottled with black or white (often quite pale), with an anterior, variously defined, triangular, white blotch, followed by a narrow tapering white band, which is sometimes widely dilated in the region of the second pair of muscular scars and scalloped on the margins, and with a series of five or six oblique black spots, each with a small triangular white spot on its outer side; lateral area mottled with white and brown, or dark brown; ventral area darker, with six white spots, the median being elongate. Femora i. and ii. with a double series of spines beneath.

*Vulva.* Basal portion narrow and straight, dilated at its base, the apical third strongly geniculate and slightly recurved, constricted near its apex, forming a circular concave spoon. Beneath the posterior part of the reflexed margin lies a small tubercle on each side, forming the termination of an inner chitinous rim, and having beneath it on each side the genital orifice. Seen directly from above, the apical spoon is about twice as long as broad.

*Hab.* North America [2], San Diego in California [3 7].—Mexico, Ciudad in Durango (*Forrer*), Rincon, Acapulco, Dos Caminos (*H. H. Smith*), Oaxaca (*Sallé, in coll. Keyserling* [1]); Panama, Bugaba (*Champion*).

McCook also quotes [4] the Galapagos Islands as a locality, but it is possible that he has overlooked the difference between *N. cooksoni*, the type of which came from these islands, and his own species. He draws no comparison between *N. theis* (Walck.) and *N. vertebrata*, obviously very closely allied, a fact he does not even mention; while other species that evidently belong to this group are scattered about in his work, without even a hint to show that the author had any idea of their near relationship. One cannot, of course, be quite certain that my identification of McCook's species is correct; I am pretty sure, however, in spite of the three teeth figured on the tarsal sheath of the palpus (t. 5. fig. 4) of the male, that the forms before me are really identical with *N. vertebrata*, and these do not differ from *N. oaxacensis* (Keyserl.), of which the type (♀) is now before me.

## 2. **Neoscona conifera,** sp. n. (Tab. XLIV. figg. 6, 6 *a*, *b*, ♂; 7, 7 *a*, *b*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 6, ♀ 6–10 millim.

♂. Similar in general characters to *N. oaxacensis*, except that it is much smaller; the spinulation of tibia ii. is different; and the apex of the clavis of the genital bulb is not dilate. Tibia ii. has one or two spines, at most, at the base on the underside, and a less numerous series (20–27) on the inner side. From the other species of the genus it may at once be recognized by the coniform spur on coxa iv.

♀. Carapace dull yellow, with a broad submarginal and narrow central brown band. Sternum black, with a pale anterior central line. Mouth-parts brown at the base, yellow apically. Mandibles dull yellow. Legs pale yellow, the femora becoming a shade darker towards the apex; patellæ very slightly suffused with pale brown at the tip; tibiæ with a faint basal and a large apical annulus; protarsi with a basal, central, and apical annulus, the latter the most distinct; tarsi with an apical brown annulus. Abdomen black, with the usual central white anterior triangle and posterior scalloped white band, more or less variegated centrally with brown; the usual five or six lateral black spots on the margin with tufts of white hair; upper lateral area white, speckled with brown; lower lateral area black, with two or three dentations on the upper margin; below this and anteriorly the area is white; ventral area deep black, with an anterior and a posterior pair of small, round, and a median pair of elongate, white spots. Legs with long and numerous spines. Femora i. and ii. with a double series of spines, but the outer series is represented by mere bristles; iii. with two basal series of long bristles; iv. with scarcely any.

*Vulva.* Very similar to that of *N. oaxacensis*, but in a profile view the upper (*i. e.* anterior) margin is more convex.

*Hab.* Mexico, Chilpancingo, Cuernavaca (*H. H. Smith*); Costa Rica, San José (*Sarg*).

It is possible that *N. conifera* may be a dwarf form only of *N. oaxacensis*; but in the examples of the male the differential characters are distinct and constant, and in the female the convexity of the base of the vulva is quite evident in the few examples before me.

### 3. **Neoscona benjamina.** (Tab. XLIV. figg. 8, 8 *a*, *b*, ♀.)

*Epeira benjamina*, Walck. Ins. Apt. ii. p. 42 [1]; Abbot, Georgian Spid. figg. 126, 351 [2]; McCook, Amer. Spid. iii. p. 147, t. 1. figg. 7, 7 *a*, *b*, t. 2. fig. 4, t. 28. fig. 13 (♀), t. 1. figg. 7 *c*, t. 2. fig. 5 (♂) [3].

*Epeira benjamini*, Keyserl. Spinn. Amer., Epeiridæ, p. 134, t. 7. figg. 100, 100 *a*, *b* (♀) [4].

*Epeira domiciliorum*, Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 469, t. 30. fig. 7 (♀) [5]; Spid. U.S. (ed. Burgess), p. 108, t. 12. fig. 7 (♀) [6]; Emerton, Trans. Conn. Acad. Sci. vi. p. 312, t. 33. fig. 17 (♀), t. 36. figg. 1, 4 (♂) [7].

*Epeira hentzii*, Keyserl. Sitzungsb. nat. Ges. Isis, Dresden, 1863, p. 97, t. 5. figg. 10, 11 (♀) [8].

Type of *E. hentzii* in coll. Dr. L. Koch, Nuremberg. Total length (sec. McCook), ♂ 6, ♀ 15 millim.

♀. Identified from examples in coll. Keyserling (Mus. Brit.), labelled by him *E. hentzii*=*E. domiciliorum*, Hentz, these agreeing sufficiently with McCook's description of *N. benjamina* (Walck.).

Carapace unicolorous brown, paler in the centre. Abdomen with the folium as figured on our Plate. Legs annulate, femora i. and ii. less distinctly; tibiæ and protarsi i. and ii. with a median, as well as a basal and apical, annulus, ii. and iv. without the median. Central white spot on the ventral area oval. Posterior central eyes less, and the anterior centrals more, than a diameter apart, both being three diameters from the laterals. Femora i. and ii. without rows of spines beneath. Vulva strongly geniculate at the apex; apex of scapus oval-elongate, narrowed about the middle and deeply concave, the infra-marginal tubercle prominent when seen from above.

The male, according to Emerton, has tibia ii. straight, or nearly so, and armed with a double row of short spines on the inner side, the basal spines being scarcely longer than the rest, thus differing from the same sex of *N. trivittata* (Keys.), in which tibia ii. is strongly curved. No mention is made by Keyserling, Emerton, or McCook of a cone on coxa iv., so that this is probably absent.

*Hab.* North America [1–8], California [3].—Mexico (*coll. Keyserling, in Mus. Brit.*).

### 4. [**Neoscona theis.** (Tab. XLIV. figg. 9, 9 *a–d*, ♂; 10, 10 *a–d*, ♀.)

*Epeira theis*, Walck. Ins. Apt. ii. p. 53, t. 18. fig. 4 (1840) (♀) [1].

*Epeira mangareva*, Walck. op. cit. iv. p. 469 [2]; Thorell, Ann. Mus. Genova, xiii. p. 65 (1878) [3]; op. cit. xvii. p. 115 (1881) [4].

*Epeira triangulifera*, Thorell, loc. cit. p. 65 [5].

*Epeira ventricosa*, *E. longispina*, *E. multispina*, *E. etheridgei*, *E. festiva*, *E. obscura*, Rainbow, Mem. Austral. Mus. iii. pp. 110–120, tt. 3, 4 [6].

[Nec *E. theisii*, Keyserl. Spinn. Amer., Epeiridæ, p. 246; McCook, Amer. Spid. iii. p. 166; Simon, P. Z. S. 1897, p. 874.]

Examples, ♂ and ♀, in Mus. Brit., from Funafuti. Total length, ♂ 7, ♀ 12 millim.

♂. Differs from *N. oaxacensis* and *N. conifera* in wanting the conical spur on coxa iv., and in having fewer spines on the inner side of tibia ii.; and from the American species without a spur on coxa iv. in the

number and character of the spines on tibia ii. (see Plate). The spine on the clavis of the genital bulb is curved, and its point parallel with the apex of the main portion.

♀. Carapace deep brown, paler in the middle. Mandibles, coxæ and trochanters of legs, mouth-parts, and sternum deep brown, the latter with a pale central line. Palpi and legs orange-yellow-brown annulated with black; femora with an apical annulus and often a central indistinct ring or merely suffused dorsally with black; tibiæ and protarsi with an apical, median, and basal ring; patellæ with an apical annulus; tarsi with the apices black. Abdomen deep brown or black, with the normal central dorsal white band, entire or scalloped, entirely white or mottled with black. The five black lateral spots are lost in the ground-colour, but are often margined posteriorly with white; lateral area with a broad broken white band; ventral area deep brown, with the usual six white spots—one on each side of the vulva, a pair midway to, and another smaller pair (wider apart) in front of, the spinners. The colours and markings are probably extremely variable.

*Vulva.* The scapus of the vulva is not, as in *N. oaxacensis* and *N. conifera*, geniculate in the apical portion, nor rounded, seen in profile, as in *N. cooksoni*, but much straighter from base to apex; while the cochlea is longer, narrower, and more bluntly pointed at the apex, and the scapus is not dorsally tuberculo-rugulose.

*Hab.* MARIANNE IS.; FUNAFUTI [6]; GUAM [1]; CELEBES; AMBOINA [3 5].

The male of this species in general appearance is very like a small *N. oaxacensis*, but it is quite distinct from that and other American forms.]

### 5. **Neoscona minima,** sp. n. (Tab. XLIV. figg. 11, 11 *a*, *b*, ♂; 12, 12 *a*, *b*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 7 millim.

♂. Similar in general characters to *N. theis* and *N. arabesca* (*trivittata*, Keyserl.). Carapace yellow-brown, with the central striæ black. Legs yellow, without annulations; sternum yellow, margins narrowly banded with brown. Abdomen with a dusky dorsal folium, bearing the usual white central band, having on the apical half the usual series of six oblique black spots on each side, and immediately in front of the first pair of these a more conspicuous white spot. Tibia ii., seen from beneath, straight, with a single long spine curving across inwards on the underside at the base, besides other short spines, of which there are four or five on the central area, and a median outer series of three or four, the number and character of the latter, so far as the length is concerned, varying in different individuals; on the inner side are about twelve separate spines, not very stout nor curving downwards, more scattered and not ranged in any definite serial manner. Femora i.–iv. almost devoid of spines beneath, but in some examples there are three or four on ii., iii., and iv. The clavis of the genital bulb has the lateral spine closer to the apex than in *N. theis* and others. Coxa iv. is without a conical spur.

♀. Carapace yellow-brown, with broad marginal and central dark bands. Legs dull yellow, with faint annulations on the femora, patellæ, and tibiæ. Sternum brown, with a broad central pale band. Mouth-parts brown at the base. Abdomen globular-oval, sometimes more pointed apically; dark brown, dull yellow, or yellow-white; with a central dorsal dark longitudinal area, or folium, having the usual white central band, with five or six oblique lateral dark spots on each side in the apical half, and always with a very conspicuous and isolated small white spot in front of the first of the lateral black spots, on each side; upper lateral area white, the lower area dark brown; ventral area with a series of three white spots on each side and one on each side of the spinners, the genital rima being paler in some examples.

*Vulva* very similar to that of *N. arabesca* in shape, but with the scapus shorter and the spatula not narrowed where it joins the base. In both species the basal portion is dilated and more or less abruptly marked off from the spatula, thus differing from that of *N. volucripes.*

*Hab.* MEXICO, Teapa, Orizaba, Mexico city (*H. H. Smith*); GUATEMALA, Cahabon, Coban, Chicoyoito (*Sarg*).

In general appearance this species closely resembles *N. arabesca* (*trivittata*, Keys.), and if it were not for the perfectly distinct form of tibia ii. of the males one would

never suspect them to be different. Amongst the numerous examples before me, however, from Central America, there is not a single male with the form of tibia ii. characteristic of *N. arabesca*, as pointed out by Emerton and confirmed by an examination of Keyserling's types of *E. trivittata*. It is possible that with fresh examples one might discover points of difference in colour which were constant.

### 6. **Neoscona arabesca.** (Tab. XLIV. figg. 13, 13 *a*, *b*, ♂; 14, 14 *a*, *b*, ♀).

*Epeira arabesca*, Walck. Tabl. des Aran. p. 63[1]; Ins. Apt. ii. p. 74[2]; Abbot, Georgian Spid. nos. 331–346[3]; McCook, Amer. Spid. iii. pp. 80, 148, t. 1. figg. 8, 8 *a*, t. 2. figg. 6, 7 (♀), t. 1. fig. 8 *b* (♂)[4].

*Epeira trivittata*, Keyserl. Sitzungsb. nat. Ges. Isis, Dresden, 1863, p. 95, t. 5. figg. 6, 7 (♀), 8, 9 (♂)[5]; Spinn. Amer., Epeiridæ, p. 172, t. 8. figg. 127, 127 *a*, *b* (♀)[6]; Emerton, Trans. Conn. Acad. Sci. vi. p. 311, t. 33. figg. 16, 16 *a* (♀), t. 36. figg. 2, 3, 4, 5 (♂), 8 (♀)[7]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 254[8].

Type ♂, gynetype ♀, of *N. trivittata* (Keyserl.), in Mus. Brit. Total length, ♂ 4·5, ♀ 7·2 millim.

♂. Similar in general characters to the same sex of *N. minima*, but at once distinguishable by the curved form of tibia ii. This segment, seen from the underside, is strongly curved, concave on the inner side, with two basal spines beneath, the outer one larger and curved across towards the inner side, and one outer marginal spine towards the base; the central area, beneath, has no spines (thus differing also from that of *N. minima*); the inner side has three long spines on the basal prominence and four shorter spines on the basal half, beyond these is a single series of about 7 short stout spines curving upwards. Femora i. without spines beneath; ii. with a series of 5 or 6 spines in the apical half beneath; and iii. and iv. with a series of 5 or 6 spines beneath. The lateral spine of the clavis of the genital bulb is nearer the base than the apex. Coxa iv. is without a conical spur.

♀. Colour almost precisely similar to that of *N. minima*. The scapus of the vulva, however, presents, in all the examples before me, a constant difference: the base is dilated and the spatula is much narrower where its reflexed margins meet, while the whole scapus is slightly, but constantly, longer.

*Hab.* North America[1 4 5 6 7].—Mexico, Guaymas, Tepic, Orizaba (*fide Banks*[8]).

There is nothing to show that the species identified and described by McCook as *N. arabesca* (Walck.) (=*trivittata*, Keyserl.) is not really identical with the original, and his decision on the point must therefore be accepted.

I doubt whether it really occurs in Mexico, for out of numerous examples which might be taken for it, none present the characters found in the type of *N. trivittata*.

Our figures are taken from North-American specimens.

### 7. **Neoscona amulensis,** sp. n. (Tab. XLIV. figg. 15, 15 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 8 millim.

♂. Very similar to *N. theis*, except as regards the spinulation of tibia ii.; and differing from *N. minima* in having the central area of the same segment without spines beneath. The spur on the clavis of the genital bulb is blunt, slightly sinuous, and quite at the apex. Tibia ii. beneath with three long outer marginal ordinary spines (no large basal or central spines), an inner marginal series of 9–10 specialized spines, two basal spines (these are really on the inner side of the segment), and three ordinary dorsal spines.

*Hab.* Mexico, Amula (*H. H. Smith*).

This spider may be the male of *N. volucripes*; but since McCook has also described a deuterotype male of Keyserling's species, I am not at all sure that his specimen is identical with the male here described.

[8. **Neoscona cooksoni.** (Tab. XLIV. figg. 16, 16 *a*, *b*, ♀.)

*Epeira cooksonii*, Butl. P. Z. S. 1877, p. 76, t. 13. figg. 2, 2 *a–c* (♀) [1].

Type, ♀, in Mus. Brit. Total length 17 millim.

Very like *N. oaxacensis* in general appearance, but legs iii. and iv. are not annulate, and the median ventral spot is large and circular, characters which have probably little value. The form of the vulva is, however, quite distinct, neither apically geniculate, but very broadly rounded, nor constricted, the base very convex, in profile, and dorsally strongly tuberculato-rugulose.

*Hab.* Galapagos Is., Albemarle I. [1].

McCook refers his examples from the same locality to *N. vertebrata*.]

9. **Neoscona orizabensis,** sp. n. (Tab. XLIV. figg. 17, 17 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 16 millim.

♀. Carapace unicolorous brown, darker marginally. Sternum brown, with a pale central band. Legs orange-brown, tibiæ, protarsi, and tarsi yellow; femora i. and ii. annulate with black at the base, and iii. and iv. at the base and apex; tibiæ, protarsi, and tarsi annulate with black at the apex. Abdomen triangular-oval, dark olive-brown, paler anteriorly on the dorsal area, having the central band ill-defined, and the series of oblique lateral spots, though present, not always conspicuous; lateral area varying in colour from olive-brown to yellow-brown; ventral area black, with the pair of median white spots large, round, and conspicuous, the others less so. Mandibles and base of mouth-parts brown. Femora without series of spines beneath.

*Vulva* of the same general character as that of the rest of the group, but quite distinct. It is shorter from base to apex than in *N. cooksoni*, and broader in proportion, though very much curved, in profile, presenting a more squat appearance; the apical spoon is broadly rounded, and the infra-marginal tubercle strongly developed.

*Hab.* Mexico, Orizaba (*H. H. Smith*).

This species is very similar in general appearance to *N. benjamina*, but if the form of the vulva is any criterion, it is quite distinct.

10. **Neoscona volucripes.** (Tab. XLIV. figg. 18, 18 *a*, *b*, ♀.)

*Epeira volucripes*, Keyserl. Verh. zool.-bot. Ges. Wien, xxxiv. p. 528, t. 13. fig. 27 (♀) (1884) [1]; Spinn. Amer., Epeiridæ, p. 199, t. 9. figg. 147, 147 *a* (♀) [2]; McCook, Amer. Spid. iii. p. 162, t. 6. figg. 1, 1 *a*, *b* (♀), 2, 2 *a* (♂) [3].

Type, ♀, in Mus. Brit. Total length 9·5 millim.

♀. Very variable in colour. Carapace yellow-brown, with broad marginal brown suffusions. Legs yellow-brown; femora with the apical two-thirds (often entirely) black; tibiæ and protarsi i. and ii. not annulate, iii. and iv. annulated with black. Abdomen usually dark brown or black, with the normal narrow scalloped pale band and five lateral black spots; lateral area black, its upper margins dentate and running up at points into the white upper lateral area; ventral area dull yellow-brown, with the usual white spots, but the median pair are the more conspicuous. Femora i.–iv. without spines beneath.

*Vulva* similar in general character to that of others of the group, but more lamelliform, seen in profile. As

seen from above, it is broad at the base and gradually narrowed to the bluntly rounded apex, forming an isosceles triangle, the lateral margins being slightly sinuous, but nowhere so constricted as to mark off the spoon-like apical portion from the basal portion; the infra-marginal tubercle with the orifice on each side is present; the spoon itself is very shallow.

*Hab.* North America [2].—Mexico, Amula (*H. H. Smith*); Costa Rica, San José (*Sarg*); Panama (*coll. Keyserling* [1 2]).—Haiti [1 2].

Both Emerton and McCook have determined *N. vulgaris* (Hentz) to be identical with the American form of *Araneus sclopetarius*, Clerck, and the mere statement by Mr. Banks [Proc. Calif. Acad. Sci. (3) i. p. 254] that the former species is identical with *N. volucripes*, Keyserl., is not sufficient to upset the first (Emerton's) determination.

## NEOSCONELLA, gen. nov.

Type *N. styligera*, sp. n. Guatemala.

♂. Coxa i. with a hook and femur ii. with a groove; a small tubercle above coxa i. Coxa and femur of pedipalp with a coniform spur and chitinous ridge respectively. Tibia ii. not incrassate, with three long spines beneath in the median third of the segment, four stout spines on the upper margin of the inner side and two on the lower margin in the apical third of the segment. Protarsus ii. with a single spine on the outside about the middle. Femora i. and ii. with a double series of fine spines beneath; iii. and iv. with a single series. Patella of pedipalp with two apical spines. Tarsal sheath bearing a well-developed uncus at its base. Lateral eye-groups not projecting forwards, situated well behind the anterior margin of the base of the mandible. Central anterior eyes prominent, but not specially so. Posterior row of eyes slightly recurved; anterior row also slightly recurved. Quadrangle narrower behind; posterior centrals slightly smaller, one-third of a diameter apart; anterior centrals a full diameter apart. Coxæ and trochanters ii., iii., and iv. without cusps or spines. Palpal bulb bearing a very small bifid clavis, without a large cymbium, but with a lamella on the outer side, under the upper margin of which lies a conspicuous stylum.

♀. Posterior central eyes separated by less than a diameter, not smaller than the anterior centrals, which are one full diameter apart. Central quadrangle distinctly narrower behind, not longer than broad; both rows recurved. Laterals almost in contact, anteriors slightly larger, not situated on a tubercle. Lower margin of fang-groove with three, upper with four teeth. Femora i.–iv. without spines beneath. Patellæ i.–iv. with a stout apical spine. Carapace not raised or convex behind the eyes. Sternum not, or slightly, longer than broad. Scapus of vulva not fused to the basal portion, free, not specially looped back. Abdomen oval, without shoulder-tubercles.

Note.—In other species of the genus tibia ii. of the male is incrassate and differently spined.

The species known to me may be recognized as follows:—

### *Males.*

*a*. Femora of legs i. and ii. without black lines in front, either unicolorous yellow or more or less suffused with brown.

*a*[1]. The stylum (fig. 1, *st.*) lying beneath the upper margin of the lamina of the palpal bulb, slender, uniformly parallel-sided, blunt at its apex . . . . . *styligera*, sp. n.

*b*[1]. The stylum (fig. 3, *st.*) of the palpal bulb constricted basally, oblong-oval, terminating in a sharp point . . . . . *solersioides*, O. P.-Cambr.

*b*. Femora of legs i. and ii. with three narrow black lines in front . . *lineatipes*, O. P.-Cambr.

*Females.*

*a*. Femora of legs i. and ii. unicolorous yellow or suffused with brown, without black lines in front.

*a*[1]. Scapus of vulva very broad basally, triangular, not constricted towards the apex . . . . . *styligera*.

*b*[1]. Scapus of vulva not, or scarcely, broader towards its base, elongate, parallel-sided, straight or sinuous, always more or less constricted at the base of the apical spoon-like cavity.

*a*[2]. Carapace, mandibles, and sternum pale yellow . . . . . *solersioides*.

*b*[2]. Carapace, mandibles, and sternum deep brown or almost black.

*a*[3]. Ventral area without white spot behind the genital rima (see also Plate for abdominal pattern and the character of the vulva) . . . . . *expleta*, O. P.-Cambr.

*b*[3]. Ventral area with one or a pair of white spots behind the genital rima.

*a*[4]. Ventral area with a pair of spots behind the genital rima (see also Plate) . . . . . *habilis*, O. P.-Cambr.

*b*[4]. Ventral area with a single white spot behind the genital rima (see also Plate) . . . . . *guttata*, sp. n.

*b*. Femora of legs i. and ii. with three narrow black lines in front . . *lineatipes*.

### 1. **Neosconella styligera,** sp. n. (Tab. XLV. figg. 1, 1 *a*, ♂; 2, 2 *a–c*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 7·5 millim.

For the structural characters of both sexes, see the generic diagnosis.

♂. Carapace red-brown, the sutures tinged with darker brown. Legs yellow, femur i., apex of femur ii., and tibiæ i.–iv. tinged with brown. Abdomen mottled dark brown, with the pale folium characteristic of the members of this genus consisting of a large anterior semicircular blotch, squarely truncate behind, and often more or less broken up crosswise in the middle, continued towards the spinners as a narrow, slightly scalloped band pointed behind; flanked on each side by a row of six more or less conspicuous black spots. Ventral area with an indistinct white spot behind the genital rima and two white dots on each side of the spinners.

♀. Similar in general character to the ♂, but with the carapace and abdomen not so dark, nor are the legs suffused with brown. *Vulva* quite distinct from that of the allied species in having the scapus triangular, very broad basally, with the usual shallow cavity (spatula) at its apex.

*Hab.* GUATEMALA (*Sarg*).

### 2. **Neosconella solersioides.** (Tab. XLV. figg. 3, ♂; 4, 4 *a–g*, ♀.)

*Epeira solersioides,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 25, t. 7. figg. 15, 15 *a–c* (♂)[1]; Banks, Proc. Cal. Acad. Sci. (3) i. p. 254[2].

Type ♂, deuterotype ♀, in coll. Godman & Salvin. Total length, ♂ 4·5, ♀ 5 millim.

♂ fully developed, but probably not quite mature. Carapace, mandibles, sternum, and legs white; tibiæ i. and ii. with a faint brown tinge at their apex. Abdomen with the normal white central folium (see figure of ♀ var. on Plate); sides and ventral area cretaceous-white.

*Palpus.* Clavis of the bulb deeply bifid, forming a little fork, as in other allied forms, but the lateral lamina is characteristic in shape, as well as the stylum lying beneath and above its upper margin (see Plate).

Tibia ii. has three spines on the outer margin of the apical half beneath; three long spines on the inner side, with five or six short spines.

♀. Similar in colour to the ♂. *Vulva* characteristic (see Plate). One cannot be sure that the variety figured (4 *a*) really belongs to the same species, but in the absence of sufficient material, it is better perhaps not to describe it as distinct.

*Hab.* Lower California, San José del Cabo [2].—Mexico, Tepic (*fide Banks* [2]), Omilteme, Chilpancingo, Tepetlapa, Vera Cruz, Teapa (*H. H. Smith*); Panama, Bugaba (*Champion* [1]).

### 3. **Neosconella lineatipes.** (Tab. XLV. figg. 5, ♂; 6, 6 *a–c*, ♀.)

*Epeira lineatipes,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 30, t. 7. figg. 17, 17 *a–c* (♂), 18, 18 *a, b* (♀) [1]; Keyserl. Spinn. Amer., Epeiridæ, p. 190, t. 9. figg. 141 *b, c* (♂), 141, 141 *a* (♀) [2].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ ♀, 3·5 millim.

♂. Carapace yellow, with the cephalic sutures suffused with black, forming a V-shaped area, with a short lateral branch on each side behind the lateral eyes. Mandibles yellow, with black markings, sternum and mouth-parts yellow. Legs yellow; apex of tibiæ i. and ii. tinged with brown; femora i. and ii. with three fine black lines extending down their entire length in front. Abdomen pale yellow, with the folium delicately and narrowly outlined in black, which is on the same plan as in other allied forms; lateral areas and anterior margin speckled with black; ventral area with indistinct dusky blotches behind the genital rima and in front of the spinners. Femora i. and ii. with six or seven long stout spines (more prominent on femur ii.) on the posterior margin.

*Palpus.* Clavis of the genital bulb not bifid at its apex, but forming a long stout spur, with a much shorter spur at its base. The lamella is of a different shape to that of the allied forms (see Plate), while the stylum is very small, falciform, with its apex sharp and slightly recurved.

♀. Similar in colour to the male, but tibiæ iii. and iv. have also their apex tinged with brown, and the abdominal folium is not outlined with black in the same manner (see Plate). The black lines on femora i. and ii. are conspicuous and characteristic of the species.

*Vulva.* The scapus is longer and more sinuously curved than in the allied forms, while the lateral sclerites project more forwards beyond the central sclerite.

*Hab.* Guatemala [2], Santa Ana (*Sarg* [1]), Guatemala city (*Champion* [1]).

### 4. **Neosconella expleta.** (Tab. XLV. figg. 7, 7 *a, b*, ♀.)

*Epeira expleta,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 25, t. 6. figg. 11, 11 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

Carapace and mandibles dark brown; legs orange, apices of all the segments more or less suffused with brown. Sternum dark brown. Abdomen yellow, with a large central black-brown folium having three narrow lateral diverticula, which isolate four large pale lateral spots, and then join the black-brown lateral area, the latter being divided from the brown ventral area by a broad pale band on each side, these two bands meeting in front, but not quite reaching the spinners behind; ventral area black, without a white spot near the genital rima.

*Vulva.* The form of the scapus is characteristic, as also is that of the lateral and central sclerites (see Plate).

*Hab.* Guatemala, Senahu in Vera Paz (*Sarg* [1]).

This species is very similar in general appearance to *N. guttata*, but in the single specimen before me there is no central pale folium as in the latter species, and the vulva is, of course, also quite distinct in form.

### 5. **Neosconella habilis.** (Tab. XLV. figg. 8, 8 *a*, *b*, ♀.)

*Epeira habilis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 28, t. 8. figg. 3, 3 *a–d* (♀)[1];
Keyserl. Spinn. Amer., Epeiridæ, p. 220, t. 10. fig. 163, 163 *a* (♀)[2].

Type, ♀, in coll. Godman & Salvin. Total length 5·5–8·5 millim.

Carapace brown, with the central cephalic and thoracic areas and margins paler. Mandibles brown, with a pale central area. Legs yellow; femora i. and ii. apically suffused with brown, the apices of the other segments being also more or less distinctly tinged with brown, especially that of tibia iv. Abdomen cretaceous-yellow, with the posterior half of a dark brown folium only present; lateral areas deep brown, divided from the dark brown ventral area by a broad pale band, the two bands united in front and almost reaching the spinners behind; ventral area deep brown, with a pair of white spots behind the genital rima.

This characteristic coloration of the abdomen is due to the blending of the anterior pale semicircular portion of the normal folium with the pale lateral bands and the absence of the attenuated apical portion of the folium. In some examples the normal form of the folium obtains. *Vulva* characteristic (see Plate).

*Hab.* Guatemala[2], Chilasco, Coban, Antigua (*Sarg*[1]).

### 6. **Neosconella guttata,** sp. n. (Tab. XLV. figg. 9, 9 *a–c*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8·5 millim.

Carapace and mandibles purple-black; legs deep orange, femora i. and ii. and apical third of iii. and iv. suffused with brown; apices of the other segments, except protarsi i. and ii., tinged with brown. Sternum black-brown. Abdomen rich chocolate-brown, having a central yellow folium and four yellow spots on each side; the dark lateral areas are separated from the dark ventral area by a broad pale band, the two bands meeting in front, but not reaching the spinners behind, the ventral area with a single round yellow spot behind the genital rima. *Vulva* characteristic (see Plate).

*Hab.* Mexico, Omilteme (*H. H. Smith*).

## MANGORA.

*Mangora*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 13 (1889).
*Abbotia*, McCook, Amer. Spid. iii. p. 239 (1895).

Type of *Mangora*, *M. picta*, O. P.-Cambr.; of *Abbotia*, *A. gibberosa* (Hentz).

Carapace more or less gibbous or convex posteriorly, with a long central furrow. Central quadrangle of eyes narrower in front; central posterior eyes larger, often much larger than the laterals; anterior row of eyes recurved. Sternum as broad as long, broadly produced between coxæ iv. Spines on the legs very long, especially in the male; protarsi i. and ii. furnished with spines on the basal third only. Tibia iii. (and to a less extent iv.) furnished on the anterior basal third, in both sexes, with a cluster of 8–10 long, slender, curved cilia, or two diagonal rows of 7 or 8 cilia each.

♂. Tibia ii. sometimes bearing two or three special spines beneath. Coxa i. with a stout hook, correlated with a deep groove on femur ii. The patella of the palpus with a single spine, or stout bristle, only at its apex above.

The species known to me may be distinguished as follows:—

*Males.*

A. Femur iv. without a spinule at the base on the inner side.
  *a*. Coxa iv. without a sharp conical spur.
    $a^1$. Embolus at apex of palpal bulb quite short, broad, and slightly curved. Bulb with a small, broad, hook-like process on the outer side beneath . . . . . *bimaculata*, O. P.-Cambr.
    $b^1$. Embolus of palpal bulb long, slender, circularly curved.
      $a^2$. Embolus much longer, basally taking a large circular curve, apically sinuous. Conductor with a long, slender, cylindrical, curved spur . . . . . *calcarifera*, sp. n.
      $b^2$. Embolus shorter, forming a semicircular or almost circular curve throughout its length. Conductor without a long spur . . . . . *picta*, O. P.-Cambr.
  *b*. Coxa iv. with a sharp conical spur, besides some smaller tubercles. *mobilis*, O. P.-Cambr.
B. Femur iv. with a black spinule articulated at the base beneath . . *spinula*, sp. n.

*Females.*

A. Central posterior eyes, including the black eye-spots, not conspicuously larger than the lateral posteriors, and one to two diameters from them.
  *a*. Size larger. Central posterior eyes two diameters from the lateral posteriors. See also figure of the vulva . . . . . *bimaculata*.
  *b*. Size smaller. Central posterior eyes only one diameter from the lateral posteriors.
    $a^1$. Vulva with a conspicuous tongue-like process springing from beneath the upper margin of the vulval sclerite, which is deeply emarginate in the middle . . . . . *passiva*, O. P.-Cambr.
    $b^1$. Vulva with a broad, semicircular, tongue-like process springing from the upper margin of the vulval sclerite itself, not from beneath it . . . . . *mobilis*.
B. Central posterior eyes, including the black eye-spots, very much larger than the lateral posteriors and only one-fourth of a diameter or less from them.
  $a^2$. Vulval sclerite, seen in profile, not conspicuously produced.
    $a^3$. Vulval sclerite, seen from above, deeply emarginate in the middle in the form of a large semicircle . . . . . *trilineata*, O. P.-Cambr.
    $b^3$. Vulval sclerite, seen from above, not emarginate in the middle, but produced into a small pointed projection . . . . . *calcarifera*.
  $b^2$. Vulval sclerite, seen in profile, conspicuously produced; its apex furnished with a pair of quadrate plates separated by a narrow groove . . . . . *picta*.

### 1. **Mangora bimaculata.** (Tab. XLV. figg. 10, 10 *a*, ♂; 11, 11 *a*, ♀.)

*Epeira bimaculata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 21, t. 6. figg. 12, 12 *a–c* (♂), 13, 13 *a–c* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 260, t. 13. figg. 194, 194 *a*, *b* (♀), 194 *c*, *d* (♂)[2].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 2·25, ♀ 7 millim.

This species, in the female sex at all events, is much larger than others of the genus here recorded, but otherwise, except that the posterior central eyes are smaller in proportion and much further away from the laterals, the general characters are the same. The cilia on tibia iii. are very conspicuous, arranged in two diagonal rows of 7–8. The embolus of the male palpus is short and broad; there is a small conspicuous serrated lamina at the base of the embolus and a conspicuous hook-like clavis. Tibia ii. has two special spines beneath.

In the male sex the eyes are less widely separate.

The vulva of the female is very characteristic: the upper margin is produced into a small rounded tongue, while beneath on each side lies a conspicuous concave sclerite.

*Hab.* Guatemala[2], Chicoyoito, Cahabon, Quirigua (*Sarg*[1]); Panama, Veragua (*Boucard*[1]).

### 2. **Mangora calcarifera,** sp. n. (Tab. XLV. figg. 12, 12 *a*, *b*, ♂; 13, 13 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3, ♀ 4·5 millim.

General characters in both sexes as in *M. picta*. In the male, tibia ii. has two special spines beneath; the embolus of the palpus is very long, slender, apically sinuous; the conductor has a long, slender, cylindrical spur, but there is no long clavis as in *M. spinula*, nor any cusps or spines on the fourth pair of legs. For the vulva of the female, see table and Plate.

*Hab.* Mexico, Atoyac, Teapa (*H. H. Smith*); Guatemala, Petexbatun (*Sarg*).

### 3. **Mangora picta.** (Tab. XLV. figg. 14, ♂; 15, 15 *a*, ♀.)

*Mangora picta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 14, t. 3. figg. 5, 5 *a–c* (♂), 6, 6 *a–c* (♀)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 2·5, ♀ 3·25 millim.

General characters of both sexes as in the generic diagnosis; the posterior central eyes much larger than the laterals, and less than one-fourth a diameter from them. Tibia ii. of the male with three special spines beneath. Embolus of the palpal bulb small and circularly curved; conductor without a long spur; and no clavis. The vulva of the female is characteristic, see table and Plate.

*Hab.* Guatemala, Choctum, Yzabal (*Sarg*[1]).

The specimens from the other localities quoted in Vol. I. belong to different species.

### 4. **Mangora mobilis.** (Tab. XLV. figg. 16, 16 *a*, *b*, ♂; 17, 17 *a*, ♀.)

*Epeira mobilis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 30, t. 6. figg. 1, 1 *a–c* (♀) (1889)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 240, t. 12. figg. 179, 179 *a* (♀) (1893)[2].

Type ♀, deuterotype ♂, in coll. Godman & Salvin. Total length, ♀ 4·5, ♂ 3 millim.

General characters (except those of the posterior central eyes) of the male as in *M. picta*. Coxa iv. with a conical spur, besides two or three tubercles. Embolus of palpus broad and sinuous; the conductor short and broad, without a long spur; while there is a characteristic clavis, with two sharp curved prongs.

Tibia ii. has two specialized spines beneath. Eye-spots of central posteriors of female slightly larger than the lateral eyes, and one diameter from them. Vulva with a prominent central tongue-like process, not found in any of the other species here referred to, except *M. passiva*, in which it is shorter and springs from above the vulval sclerite, not from beneath, as in *M. mobilis*.

*Hab.* MEXICO, Ciudad in Durango (*Forrer* [1]), Teapa (*H. H. Smith* [1]); GUATEMALA [2], Motagua Valley, Chicoyoito (*Sarg* [1]).

### 5. **Mangora spinula,** sp. n. (Tab. XLV. figg. 18, 18 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 3 millim.

General characters as in *M. picta*. Tibia ii. without spines beneath; femur iv. with a stout basal spine beneath. Embolus of palpus stout and sinuously curved, but not so long or slender as in *M. calcarifera*; conductor long, slender, cylindrical, slightly recurved apically; the bulb bears also on the outer side beneath a long slender clavis.

*Hab.* MEXICO, Teapa (*H. H. Smith*).

### 6. **Mangora passiva.** (Tab. XLV. figg. 19, 19 *a*, ♀.)

*Epeira passiva,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 20, t. 5. figg. 4, 4 *a–c* (♀) [1].
*Mangora passiva,* O. P.-Cambr. loc. cit. p. x [2].

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

General characters as in *M. picta*, except that the posterior central eyes are smaller and more remote from the laterals. The abdomen is also much more richly variegated, and the carapace and legs more deeply tinged with rich orange-red-brown. For vulva, see table and Plate.

*Hab.* MEXICO, Orizaba (*H. H. Smith*); GUATEMALA, Cahabon, San Juan Chamelco, Tactic, Chichochoc, Laguna de los Coheteros, Coban (*Sarg* [1]).

### 7. **Mangora trilineata.** (Tab. XLV. figg. 20, 20 *a*, ♀.)

*Mangora trilineata,* O. P.-Cambr. Biol. Centr. Amer., Arachn. Aran. i. p. 14, t. 3. figg. 7, 7 *a*, *b* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

General characters as in *M. picta*. For the vulva, see table and Plate.

*Hab.* MEXICO, Misantla (*F. D. G.*), Teapa (*H. H. Smith*); GUATEMALA, Chiacam (*Sarg* [1]).

The specimens from the other localities quoted in Vol. I. belong to different species.

## MARXIA.

*Marxia,* McCook, Amer. Spid. iii. p. 192 (1895).

Type *M. stellata* (Walck.). North America.

♂. No hook on coxa i. and no groove on femur ii. Coxa and femur of pedipalp with a coniform spur and chitinous ridge respectively. Coxa iv. with a coniform spur. Tibia ii. not incrassate, nor with any specialized spines. Patella of pedipalp with a single apical spine; tarsal sheath with a chitinous uncus.

♂ & ♀. Posterior central eyes one diameter apart, smaller than the anterior centrals. Central quadrangle slightly narrower behind, not longer than broad, anterior eyes three-fourths of a diameter apart. Posterior row straight or slightly procurved; laterals subequal, almost in contact, distant from the

posterior centrals three times the space occupied by the latter; the laterals are overhung behind by a sharp angle forming the termination of a slight chitinous ridge extending about halfway towards the posterior centrals. Anterior row strongly procurved, the centrals being twice as far from the margin of the clypeus as are the laterals. Boss on the base of the mandible strongly marked. Teeth on lower margin of the fang-groove five in number, the fourth very small. Legs short, clothed with very short spines; femora i. and ii. with scarcely any spines at all beneath; protarsus and tarsus i. shorter than patella and tibia i. Carapace very convex behind the eyes. Sternum at least one-half longer than broad. Colulus present.

### 1. **Marxia stellata.** (Tab. XLV. figg. 21, ♂; 22, 22 *a–c*, ♀.)

*Plectana stellata,* Walck. Tabl. des Aran. p. 65, fig. 54 (♀)[1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 250[2].

*Epeira stellata,* Hentz, Journ. Bost. Soc. Nat. Hist. vi. p. 22, t. 3. fig. 12 (♀)[3]; Spiders U.S. (ed. Burgess), p. 125, t. 14. fig. 12, t. 18. fig. 89 (♀)[4]; Keyserl. Sitzungsb. nat. Ges. Isis, Dresden, 1863, p. 140, t. 6. figg. 24, 25 (♀[5]; Spinn. Amer., Epeiridæ, p. 83, t. 4. figg. 63 *b* (♂), 63, 63 *a* (♀)[6]; Emerton, Trans. Conn. Acad. Sci. iv. p. 319, t. 34. fig. 17 (♀), t. 37. figg. 3, 4 (♂), 5 (♀)[7]; McCook, Amer. Spiders, i. pp. 139, 339, 340[8].

*Marxia stellata,* McCook, op. cit. iii. p. 193, t. 12. figg. 4, 4 *a*, *b* (♀), 5, 5 *a* (♂)[9].

? *Marxia nobilis,* McCook, op. cit. iii. p. 194, t. 13. figg. 7, 7 *a–c*, 9 (♀), 8, 8 *a* (♂)[10].

*Cyrtarachne mexicana,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. t. 14. figg. 13, 13 *a–d* (♀)[11].

*Cyrtarachne dugesi,* O. P.-Cambr. loc. cit. pp. x, 113 (♀)[12].

*Hab.* North America[1 3–10].—Mexico[6], Tepic (*fide Banks*[2]), Guanajuato (*Dugès*[12]), Vera Cruz, Frontera, Teapa (*H. H. Smith*); Guatemala, Coban, Antigua (*Sarg*).

There is some doubt as to whether the spider identified by Emerton (*tom. cit.*) as *Epeira stellata* (Hentz) is identical with the examples before me; these latter, however, agree with McCook's description and figures of *Marxia stellata* *.

## VERRUCOSA.

*Verrucosa,* McCook, Proc. Acad. Phil. 1888, p. 78.

*Mahadeva,* Marx, Proc. U.S. Nat. Mus. xii. p. 541 (1889); Keyserling, Spinn. Amer., Epeiridæ, p. 67 (1892).

*Mahadiva,* O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 53 (Dec. 1889).

Type of *Verrucosa*, *V. arenata* (Walck.); of *Mahadeva*, *M. verrucosa* (Hentz).

♂. Coxa i. with a hook and femur ii. with a groove; coxa i. also with a small tubercle towards the base above. Coxa and femur of pedipalp with a coniform spur and chitinous ridge respectively. Tibia ii. incrassate, with strong, short, curved, specialized spines, and a stout spur about the middle bearing a pair of spines at its apex. Patella of pedipalp bearing a single apical spine; tarsal sheath with chitinous uncus at its base.

♂ & ♀. Posterior central eyes half a diameter apart, smaller than the anterior centrals. Central quadrangle distinctly narrower behind, not longer than broad, anterior eyes nearly one diameter apart. Posterior row slightly recurved, laterals almost in contact; the anteriors distinctly larger, distant from the posterior centrals nearly three times the space occupied by the latter. Anterior row straight or slightly recurved,

* In Hist. Nat. Araign. 2nd edit. i. p. 801, in connection with *M. stellata*, there occurs a misprint—"*recurvée*" instead of "*procurvée.*" The males of the *M. stellata* before me have no coxal hook on leg i., as stated to be the case by Simon (*loc. cit.* p. 802).

the centrals being a very little nearer the margin of the clypeus. The anterior lateral eyes are set in a low rounded tubercle. Lower margin of fang-groove with three teeth. Legs long and slender, clothed with spines and long bristles. Femora i. and ii. with a double series of short spines beneath. Protarsus i. shorter than tibia and patella i. Protarsi i.–iv. without spines beneath. Carapace not raised and convex behind the eyes. Sternum scarcely longer than broad. Colulus present. Scapus of vulva very long, not entirely fused to the basal portion, having a free sclerite on each side.

The species known to me may be recognized as follows:—

*Males.*

A. Outer upper anterior side of tibia ii. with four stout spines. Embolus of palpal bulb strongly curved downwards at apex. Clavis of bulb with two teeth at apex . . . . . *arenata*, Walck.

B. Outer upper anterior side of tibia ii. with two spines only. Embolus of palpal bulb directed straight forwards. Clavis of bulb with one tooth only at apex . . . . . *undecim-variolata*, [O. P.-Cambr.

*Females.*

A. Femora i. and ii. with two series of spines beneath. Scape of vulva, on each side, not separated from the basal portion. Apex of abdomen with 7 tubercles . . . . . *arenata*.

B. Femora i. and ii. without a series of spines beneath. Scape of vulva, on each side, distinctly separated from the basal portion. Apex of abdomen with 9 tubercles . . . . . *undecim-variolata*.

1. **Verrucosa arenata.** (Tab. XLV. figg. 23, 23 *a*, *b*, ♂ ; 24, 24 *a–e*, ♀.)

*Epeira arenata*, Walck. Ins. Apt. ii. p. 133[1]; Abbot, Georgian Spiders, nos. 165, 181, 182, 183, 360[2].

*Verrucosa arenata*, McCook, Proc. Acad. Phil. 1888, p. 78[3]; Amer. Spiders, iii. p. 200, t. 12. figg. 6, 6 *a–c* (♀), 7, 7 *a* (♂)[4].

*Epeira verrucosa*, Hentz, Journ. Bost. Soc. Nat. Hist. vi. p. 19[5]; Spid. U.S. (ed. Burgess), p. 121, t. 14. fig. 2 (♀)[6].

*Mahadeva verrucosa*, Marx, Cat. N. Am. Spiders, p. 541 (1889)[7]; Keyserl. Spinn. Amer., Epeiridæ, p. 72, t. 3. figg. 56, 56 *a* (♀), 56 *b*, *c* (♂)[8].

*Mahadiva reticulata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 54, t. 3. figg. 10, 10 *a–c* (♂)[9]; Keyserl. Spinn. Amer., Epeiridæ, p. 71, t. 3. figg. 55, 55 *a* (♂)[10].

Type, ♂, of *M. reticulata*, in coll. Godman & Salvin. Total length 4·5 millim.

Carapace red-brown, more or less variegated with darker brown. Abdomen with seven warts posteriorly, in two rows of three each and a single small anal one, and two lateral warts on each side between the former and the one at the shoulder. Legs dull yellow-orange, the femora with dark annulations in the apical half, the tibiæ also having a central and apical black annulus. Protarsi i. and ii. entirely dark. Femora i. and ii. with two series of more or less well-developed spines in front; tibiæ i. and ii. with two rows of spines beneath. Scapus of vulva enclosing the base on each side.

Tibia ii. of the male with two spines at the apex of the central spur set transversely in the same straight line, but with four conspicuous spines on the outer upper side. Embolus of palpus strongly curved downward and slightly backward; clavis with two teeth at its lower apical margin.

*Hab.* North America[1–8].—Mexico, Amula, Acaguizotla, Tierra Colorada, Dos

Caminos, Atoyac, Teapa (*H. H. Smith*); Guatemala [10] (*Sarg*); Costa Rica (*Rogers*); Panama, Volcan de Chiriqui (*Champion* [9]).

If I am correct in regarding all the individuals in the collection, which present every grade of variation of abdominal configuration between the two extreme forms figured on the Plate, as belonging to one species, then they will all fall under *Epeira arenata*, Walck., as determined by McCook. These spiders also vary very much in the colour of the carapace and legs. The lateral sclerites of the vulva, too, pass through all the gradations from circular to circular-triangular on each side of the basal portion. In the type (♂) of *V. reticulata* (O. P.-Cambr.) the spines on the apex of the spur on the inner upper side of tibia ii. are not both at the extreme tip, but one is below the other.

### 2. **Verrucosa undecim-variolata.** (Tab. XLV. figg. 25, 25 *a*, ♂; 26, 26 *a–c*, ♀.)

*Mahadiva undecim-variolata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 53, t. 3. figg. 8, 8 *a–c* (♂), 9, 9 *a–c* (♀) [1]; Keyserl. Spinn. Amer., Epeiridæ, p. 69, t. 3. figg. 54 *b*, *c* (♂), 54, 54 *a* (♀) [2].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3·75, ♀ 7–8 millim.

Carapace dull yellow, variegated with brown spots. Abdomen with nine warts posteriorly, in three rows of three each, and with one lateral wart in addition between the former and the shoulder-wart on each side. Legs dull yellow; femora i. and ii. with two short black lines in front at the apex and a single, short, dorsal, apical, black line. Protarsi i. and ii. with a narrow, central, black line extending over the whole length. Femora i. and ii. without rows of spines in front. Scapus of the vulva on each side remote from the base. Tibia ii. of the male with the large central spur; the two spines at its apex being set in the same straight line transversely, with two spines only on the outer upper side in the apical half. Embolus of male palpus straight at apex and directed forward; clavis with one tooth at its lower apical margin.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*); Guatemala [2], Vera Paz (*Sarg*); Costa Rica (*Rogers*); Panama, Bugaba (*Champion* [1]).

The examples of this species before me vary very much in the configuration of the abdomen, from being almost circular to triangular, with quite sharp shoulder-points.

## WIXIA.

*Wixia*, O. P.-Cambridge, P. Z. S. 1882, p. 437; McCook, Amer. Spiders, iii. p. 205.

*Amamra*, O. P.-Cambridge, Biol. Cantr.-Amer., Arachn. Aran. i. p. 55 (1889); Keyserling, Spinn. Amer. Epeiridæ, p. 44.

*Vixia*, E. Simon, Hist. Nat. Araign. 2nd edit. i. p. 829.

*Araneus*, E. Simon, loc. cit. p. 829.

*Epeira*, auct. ad part. (for *E. ectypa*, Walck., *E. infumata*, Hentz).

Type of *Wixia*, *W. abdominalis*, O. P.-Cambr., Amazons; of *Amamra*, *A. bituberosa*, O. P.-Cambr., Costa Rica.

♂. Coxa i. with a hook and femur ii. with the correlated groove. A wart above coxa i. at its base. Coxa and femur of pedipalp with a coniform spur and chitinous ridge respectively. Tibia ii. incrassate basally, armed with a basal series of three very long spines on the underside (the incrassate portion) and two series

of five spines (the basal ones much longer) on the inner side. Femora i. and ii. with a series of 8–10 (variable in number in different species) long spines beneath, iii. with one or none, iv. with a series of five or six beneath. Patella of pedipalp with a single apical spine. Tarsal sheath with a well-developed uncus at its base. Lateral eye-groups not prominent; situated well behind the anterior margin of the base of the mandible. Central quadrangle not prominent, but the posterior eyes are set upon two prominent tubercles, two diameters apart and slightly larger than the anterior centrals (much less disparity than in the female sex). Anterior row straight, central and lateral eyes being equidistant from the margin of the clypeus. Quadrangle square, not narrower behind. Coxæ iii. and iv. and trochanter iv. with one or more stout spines *. Abdomen with two low tubercles between the anterior shoulder-angles.

♀. Central quadrangle of eyes wider behind, broader than long; posterior centrals much larger, two full diameters apart, set on two rounded tubercles, almost overhanging the anterior eyes. Laterals in contact. Anterior row straight, measuring from the margin of the clypeus, appearing slightly procurved; posterior row slightly recurved; the laterals separated from the central posteriors by a space one-fourth wider than that occupied by the latter. Femora i.–iv. devoid of spines beneath. Tibiæ and protarsi i., ii., and iii. with a double row of spines beneath, iv. with a single row. Abdomen with two (or one) tubercles between the anterior shoulder-angles. Scapus and base of vulva fused together, the apex of the scapus prolonged into a small, thin, rounded, or pointed, spoon-like plate.

### *Males.*

*a*. Clavis of palpal bulb much narrower in the basal half, the apical portion making a larger circular sweep . . . . . *clivosa,* O. P.-Cambr.

*b*. Clavis of palpal bulb much broader basally, the apical portion making a much narrower sweep . . . . . *sicula,* sp. n.

### *Females.*

*aa*. Abdomen with two more or less prominent shoulder-tubercles.

*a*. Central posterior eyes forming a line distinctly wider than that formed by the central anteriors, situated upon a more conspicuous elevation.

*a*¹. Basal portion of scapus of vulva, above, not longitudinally concave in the middle.

*a*². Entire scapus of vulva more elongate, not globular, seen in profile; the apical spoon-like portion itself also more elongate. The two orifices closer together.

*a*³. Abdominal shoulder-tubercles longer. Basal portion of scapus longer, seen in profile, the lateral bosses more conspicuous; the cavity on the upperside of the spoon-like portion narrower and more elongate . . . . . *gibbifera,* O. P.-Cambr.

*b*³. Abdominal shoulder-tubercles shorter. Basal portion of scapus narrower, shorter, seen in profile, the lateral bosses less conspicuous; the cavity of the spoon-like portion broader and more rounded at its apex.

*a*⁴. Body uniform ochre-yellow-brown, the legs faintly annulated . . . . . *bituberosa,* O. P.-Cambr.

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* It is probable that McCook has made a slip of the pen (coxa ii. for coxa iii.) in his statement that the male of *Wixia ectypa* (Walck.) has a dentiform spine on coxa ii.

*b*⁴. Body darker and the legs more distinctly annulated. Abdomen with (in the type) two distinct black spots about the middle, besides other dark mottlings and lines following the normal markings of spiders of this group. *clivosa*.

*b*³. Entire scapus of vulva shorter and more globular, seen in profile; the spoon-like portion itself shorter and less conspicuous . . *globosa*, sp. n.

*b*¹. Basal portion of scapus of vulva, above, longitudinally and broadly concave down the middle . . . . . *rufa*, O. P.-Cambr.

*b*. Posterior row of eyes not wider than the anterior row, not situated on a conspicuous elevation . . . . . *subrufa*, sp. n.

*bb*. Abdomen produced above, anteriorly, into a single, blunt, bilobate cone . . . . . *turrigera*, O. P.-Cambr.

Note.—It is highly probable that *W. clivosa* and *W. bituberosa* are identical, as they have the vulva very similarly formed. *Amamra nigromaculata*, O. P.-Cambr., belongs to *Eustala*.

## 1. **Wixia gibbifera.** (Tab. XLVI. figg. 1, 1 *a–d*, ♀.)

*Amamra gibbifera*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 137, t. 18. figg. 10, 10 *a–d* (♀)[1].

? *Araneus gibbifer*, E. Simon, P. Z. S. 1897, p. 874[2].

Type, ♀, immature, in coll. Godman & Salvin. Total length 3·25 millim.

*Hab.* Mexico, Chilpancingo in Guerrero, 4600 feet (*H. H. Smith* [1]).—Venezuela; Antilles, St. Vincent [2].

The example figured in Vol. I. is not fully mature, but two adults which I refer to this species occur in the collection, and of these figures are now added. The abdomen is pubescent, and also set with short, black, stout, curved spines. The central posterior eyes are not larger than the anterior centrals.

## 2. **Wixia bituberosa.**

*Amamra bituberosa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 55, t. 3. figg. 11, 11 *a–e* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 44, t. 2. figg. 37, 37 *a*, *b* (♀)[2].

Type, ♀, in coll. Godman & Salvin. Total length 7·5 millim.

General characters similar to those of the allied species. Abdomen pubescent, and also set above with short, black, curved spines. Central posterior eyes larger than the anterior centrals and further apart. Vulva almost exactly like that of *W. clivosa*.

*Hab.* Costa Rica [2] (*Rogers* [1]).

## 3. **Wixia clivosa.** (Tab. XLVI. figg. 2, 2 *a*, *b*, ♂; 3, 3 *a–d*, ♀.)

*Amamra clivosa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 270, t. 36. figg. 1, 1 *a*, *b* (♀), 2, 2 *a–f* (♂)[1].

Type ♀, androtype ♂, in coll. Godman & Salvin. Total length, ♀ 7·5, ♂ 5 millim.

General characters similar to those of others of the group. Central posterior eyes much larger than the central

anteriors, and wider apart (♀); central anteriors of the ♂ (through some accident) obsolete. Abdomen pubescent, and also set with short, black, stout spines. For vulva and palpus of the male, see the Plate.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith* [1]).

### 4. **Wixia globosa,** sp. n. (Tab. XLVI. figg. 4, 4 *a–d*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

General characters similar to those of others of the group. Central eyes of posterior row larger than central anteriors, forming a line distinctly wider than the anterior side of the central quadrangle, situated upon a raised bilobate tubercle. Abdomen with a pair of low, blunt, conical tubercles in front; clothed with fine pubescence and somewhat scattered, short, stout, black spines. Legs short, i., ii., and iv. approximately the same length. Femur i. with two conspicuous long spines in the apical half, and five or six apical and dorsal short spines. Tibia i. with, besides short spines, a longer spine in the basal and apical third sections; and an inner row of three basal longer, and two apical shorter, spines, and an outer row of four spines, beneath. Protarsi i. and ii. with, besides lateral and dorsal spines, two rows of 4–5 long spines beneath. Femora ii., iii., and iv. without spines in front, and scarcely any beneath. Tibia ii. with two rows of 5–6 spines beneath. Tibiæ iii. and iv. with 2–3 (or 3–3) spines beneath. Protarsi iii. and iv. numerously spined beneath; tarsi i., ii., and iii. without spines, iv. with some stout spines beneath. The vulva is very distinct in form from that of the allied species, being short, quadrate-globular, with the spoon-like portion of the scape very short.

*Hab.* Mexico, Tepetlapa (*H. H. Smith*).

### 5. **Wixia rufa.** (Tab. XLVI. figg. 5, 5 *a–c*, ♀.)

*Epeira rufa,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 34, t. 6. figg. 18, 18 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

General characters similar to those of others of the group. Abdomen pubescent, and also set with short, stout, black spines (mostly rubbed off). Central posterior eyes larger than the central anteriors, and wider apart. For the vulva, which is characteristic, see the Plate.

*Hab.* Mexico, Omilteme (*H. H. Smith*); Guatemala, Petet, Chicoyoito (*Sarg* [1]); Panama, Bugaba (*Champion* [1]).

### 6. **Wixia subrufa,** sp. n. (Tab. XLVI. figg. 6, 6 *a–c*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

General characters similar to those of the allied species, except that the posterior central eyes form a line not wider than that formed by the anterior centrals. Abdomen clothed with long fine bristles, not short and stout spines as in *W. globosa*. For figures of the vulva, see Plate.

*Hab.* Guatemala, Chiacam (*Sarg*).

### 7. **Wixia turrigera.** (Tab. XLVI. figg. 7, 7 *a*, ♀.)

*Amamra turrigera,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 251, t. 31. figg. 6, 6 *a–d* (♀)[1].

Type, ♀, immature, in coll. Godman & Salvin. Total length 5·75 millim.

*Hab.* Mexico, Chilpancingo (*H. H. Smith* [1]).

The single example of this species occurring in the collection is not fully mature;

but the form of the abdomen will serve to distinguish it from any of those belonging to this group. The abdomen is pubescent, and also set with short, stout, black spines. The central posterior eyes are larger and wider apart than the anterior centrals.

### 8. **Wixia sicula,** sp. n. (Tab. XLVI. figg. 8, 8 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

The general characters of this species are given in the generic diagnosis. It is very closely allied to *W. clivosa*, but differs from it mainly in the form of the clavis of the palpal bulb. The abdomen has a pair of coniform tubercles between the anterior shoulders, and a pair of white spots, transversely situated, midway between the spinners and the genital rima; it is clothed with long coarse hairs.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*).

## PARAWIXIA, gen. nov.

Type *Epeira destricta*, O. P.-Cambr. Guatemala.

♂. Coxa i. with a hook and femur ii. with a groove. A tubercle above coxa i. at the base. Coxa and femur of pedipalp with a coniform spur and chitinous ridge respectively. Tibia ii. incrassate, armed with a row of five or six long spines beneath, with a double series of 5–6 stout specialized spines on the inner side, the spines of the posterior series finer than those of the anterior series, arranged irregularly in pairs. Femora ii. with a single series of 8 long erect spines; i. with a series of 5, and iii. and iv. each with a series of 5 or 6, spines beneath. Patella of pedipalp bearing a single apical spine. Tarsal sheath with a large lamelliform bifid uncus at its base. Lateral eye-groups projecting forwards on a very distinct tubercle, well in advance of the anterior margin of the base of the mandible; central anterior eyes also very prominent. Posterior row of eyes recurved. Anterior row of eyes distinctly recurved, the centrals being much nearer the margin of the clypeus than the laterals. Quadrangle narrower behind, posterior centrals much smaller. Trochanter iv., in the type, without spines; in other species with one or two.

♀. Posterior central eyes half a diameter apart, nearly equal to or slightly smaller than the anterior centrals, which are almost one diameter apart. Central quadrangle distinctly narrower behind, not longer than broad. Posterior row distinctly recurved; laterals one-half a diameter of the posterior lateral apart, which is smaller than the anterior lateral. The lateral pair separated from the posterior centrals by a space equalling two and a half times that occupied by the latter. Anterior row straight or slightly recurved, the centrals being slightly nearer the margin of the clypeus than the laterals. (In the males the rows are more recurved and the eye-groups closer together; and the anterior lateral eyes are set on a low rounded tubercle.) Lower margin of fang-groove with 3 teeth, upper with 4. Legs clothed with numerous spines. Femora i. and ii. with two irregular series of short spines, iii. and iv. more or less irregularly spinose. Protarsi i.–iv. (in both sexes) with stout spines beneath, i. shorter than tibia and patella. Carapace not raised or convex behind the eyes. Sternum slightly longer than broad. Colulus present. Vulva having the scapus, atriolum, and lateral sclerites entirely fused together. Abdomen oval, but with more or less numerous shoulder, lateral, and apical tubercles.

The species known to me may be distinguished as follows:—

*Males.*

*a.* Trochanter iv. devoid of spines. Uncus of tarsal sheath of palpus deeply bifid. Clavis of palpal bulb squarely truncate apically, not bifid or prolonged into a straight or curved point . . . *destricta*, O. P.-Cambr.

*b.* Trochanter iv. with one or two spines. Uncus of tarsal sheath not bifid. Clavis of palpal bulb bifid, or prolonged into a narrowed and pointed termination.

$a^1$. Trochanter iv. with a pair of spines. Clavis of palpal bulb deeply bifid at its apex . . . . . *armata*, O. P.-Cambr.

$b^1$. Trochanter iv. with a single spine only. Clavis of palpal bulb not bifid at its apex.

$a^2$. Apex of clavis of palpal bulb having a long narrow terminal prolongation, straight and set at an angle to the basal portion . . . . . *hypocrita*, O. P.-Cambr.

$b^2$. Apex of clavis of palpal bulb with the terminal portion short and curved . . . . . *hamata*, sp. n.

*Females.*

*a*. Abdomen with from 10–13 tubercles.

$a^1$. Abdomen with from 10–11 tubercles.

$a^2$. Abdomen with 11 tubercles. Scapus of vulva much longer, half as long again as the basal portion . . . . . *destricta*.

$b^2$. Abdomen with 10 tubercles. Scapus of vulva much shorter, one-fourth shorter than the basal portion . . . *guatemalensis*, O. P.-Cambr.

$b^1$. Abdomen with 13 tubercles.

$a^3$. Scapus of vulva dilate at apex . . . . . *hoxæa*, O. P.-Cambr.

$b^3$. Scapus of vulva not dilate at apex.

$a^4$. Basal portion of vulva much narrower and constricted laterally; scapus much longer, twice as long as the base, abruptly narrowed at its apex . . . . . *tredecim-notata*, sp. n.

$b^4$. Basal portion of vulva much broader, very convex and dilate laterally; scapus equal in length to the base, not abruptly narrowed at its apex . . . . . *honesta*, O. P.-Cambr.

*b*. Abdomen with 5 tubercles. Scapus of vulva very long, sinuous (seen in profile), abruptly narrowed and not recurved at its apex . . . . . *rigida*, O. P.-Cambr.

Note.—The spines on trochanter iv. in the males are occasionally liable to variation.

### 1. **Parawixia destricta.** (Tab. XLVI. figg. 9, 9 *a*, *b*, ♂; 10, 10 *a–c*, ♀.)

*Epeira destricta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 39, t. 4. figg. 13, 13 *a–c* (♂)[1] [nec figg. 14, 14 *a*, *b* (♀)]; Keyserl. Spinn. Amer., Epeiridæ, p. 105, t. 5. figg. 78, 78 *a* (♂)[2].

Type ♂, deuterotype ♀, in coll. Godman & Salvin. Total length, ♂ 10, ♀ 17 millim.

The general characters of both sexes are given in the generic diagnosis.

♂. Femoral spines variable in number, those beneath femur i. sometimes absent. Abdomen with four warts, the shoulder and apical pair distinct, the laterals scarcely noticeable. No spines on trochanter iv. The uncus on the base of the tarsal sheath deeply bifid, forming a pair of short subsimilar incurved spurs. The clavis of the palpal bulb rounded and convex at its apex, not bifid or prolonged, but more or less squarely truncate.

♀. Both rows of eyes decidedly recurved. Femora i. and ii. with a series of short spines on the underside (besides others in front), but without two distinct rows. Abdomen (which is faded in colour) with two

low conical shoulder-tubercles, and five apical and two lateral tubercles. Femora i. and ii. with two broad, median, black rings; tibiæ i. and ii. with three black blotches on the lower side only, those on iii. and iv. very indistinct. Vulva quite characteristic, basally broad, but shorter than in *P. guatemalensis*, the scapus being, however, much longer; while the area comprised by the chitinous margins of the base beneath is much broader than in the allied species. See Plate.

*Hab.* GUATEMALA [2] (*Sarg*); PANAMA, Bugaba (*Champion* [1]).

### 2. **Parawixia armata.** (Tab. XLVI. figg. 11, 11 *a*, *b*, ♂.)

*Epeira armata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 41, t. 4. figg. 17, 17 *a–e* (♂) [1]; Keyserl. Spinn. Amer., Epeiridæ, p. 107, t. 5. figg. 79, 79 *a* (♂) [2].

Type, ♂, in coll. Godman & Salvin. Total length 8·5 millim.

General characters as in the type-species. Tarsal uncus of the palpus not bifid, but forming an elongate concave lamina. *Clavis* of the palpal bulb enormously developed and deeply bifid at its apex. Trochanter iv. bearing two short stout spines. The double series of spines on the inner side of tibia ii. consists of 4–5 spines respectively.

*Hab.* GUATEMALA [2]; PANAMA, Bugaba (*Champion* [1]).

### 3. **Parawixia hypocrita.** (Tab. XLVI. figg. 12, 12 *a*, ♂.)

*Epeira hypocrita*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 38, t. 5. figg. 8, 8 *a–d* (♂) [1]; Keyserl. Spinn. Amer., Epeiridæ, p. 109, t. 5. figg. 81, 81 *a* (♂) [2].

Type, ♂, in coll. Godman & Salvin. Total length 7·5 millim.

Characters similar to those of the type-species, but the tarsal uncus of the palpus is not bifid, and the clavis of the palpal bulb is very characteristic, being much developed, concave beneath, convex above, having a prominent median angle on the outer margin, the apex itself of the clavis being somewhat abruptly narrowed to a fine spine, set at an angle to the median portion of the clavis. Trochanter iv. bearing a single short stout spine.

*Hab.* GUATEMALA [2]; PANAMA, Bugaba (*Champion* [1]).

### 4. **Parawixia hamata,** sp. n. (Tab. XLVI. figg. 13, 13 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 10 millim.

General characters as in the type-species. Trochanter iv. usually with two spines on one side and one on the other. Tarsal uncus of palpus not bifid, but forming a curved, concave, chitinous lamina. Clavis of palpal bulb very much enlarged, convex above at its apex, concave beneath, having two rounded angles on the outer margin and the apex itself curved outwards into a blunt point.

*Hab.* COSTA RICA (*Rogers*).

### 5. **Parawixia guatemalensis.** (Tab. XLVI. figg. 14, 14 *a–e*, ♀.)

*Epeira guatemalensis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 40, t. 7. figg. 7, 7 *a–c* (♀) [1] [nec figg. 8, 8 *a–c* (♂)]; Keyserl. Spinn. Amer., Epeiridæ, p. 112, t. 6. figg. 83, 83 *a* (♀) [2] [nec figg. 83 *b*, *c* (♂)].

*Epeira merens*, O. P.-Cambr. loc. cit. p. 246, t. 31. figg. 2, 2 *a–g* (♀) [3].

Types, ♀, of *E. guatemalensis* and *E. merens*, in coll. Godman & Salvin. Total length 14 millim.

*Hab.* MEXICO, Atoyac in Vera Cruz (*H. H. Smith* [3]); GUATEMALA [2], Livingston, Chicoyoito, Tamahu, Cubilguitz (*Sarg* [1]).

I have selected the female of this species as the type, since the male (androtype, sec. O. P.-Cambr.) is the androtype of *E. tauricornis*. This course avoids the necessity of a new name in the place of *tauricornis*.

The abdomen has ten conical tubercles, the shoulder-pair being sharper. The femora i. and ii. have only one, more or less well-defined, row of spines beneath. The base of the vulva in the female is very broad, abruptly attenuate at its apex, forming a slightly recurved scapus.

### 6. **Parawixia hoxæa.** (Tab. XLVI. figg. 15, 15 *a–c*, ♀.)

*Epeira hoxæa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 35, t. 5. figg. 6, 6 *a–c* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 87, t. 4. figg. 65, 65 *a* (♀)[2].

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

Both rows of eyes distinctly recurved, the central quadrangle being situated on a much more prominent tubercle than in other members of the genus. Laterals subequal. The spines on the legs are worn off in the type, but, judging from the sockets, they are very similar in disposition to those of *P. destricta*. The vulva is characteristic, short and dilate basally, gradually attenuate to form a long scape, which is slightly dilate towards the apex and abruptly narrowed into a short blunt point. The legs are almost unicolorous, being very indistinctly annulate. The abdomen (which is faded) bears thirteen small conical tubercles, four laterals on each side and five apical; the second lateral tubercle is almost obsolete in some examples.

*Hab.* GUATEMALA[2]; PANAMA, Tolé (*Champion*[1]).

The drawings of the vulva in Vol. I. t. 5. figg. 6 *b*, *c*, are evidently taken from a malformed or mutilated example.

### 7. **Parawixia tredecim-notata,** sp. n. (Tab. XLVI. figg. 16, 16 *a–c*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 13 millim.

Eyes very similar to those of the allied species. Femora i. and ii. with, besides others, a row of short spines on the inner side. Vulva comparatively narrow at the base, which is slightly constricted, laterally, in the middle; much narrower than in *P. destricta*, while the scapus is slightly longer, but recurved and attenuate only at its apex. The abdomen (which is faded) bears four very low lateral tubercles on each side, the first pair being in front of the shoulder, and five apical tubercles.

In the single example seen there is just the faintest trace of a dusky annulus towards the apex of femora i. and ii., but even less beneath the tibiæ.

*Hab.* GUATEMALA (*Sarg*).

### 8. **Parawixia honesta.** (Tab. XLVI. figg. 17, 17 *a*, *b*, ♀.)

*Epeira honesta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 300, t. 37. figg. 6, 6 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 16 millim.

The eyes are very similar in position to those of *P. destricta*. The legs also as in that species, except that the annulus on iii. and iv. is much more distinct, and there are apical rings on the protarsi and tarsi. The vulva is characteristic, being short and very broad basally, having a short abruptly narrowed

scape (see figure). The abdomen (which is faded) bears thirteen conical tubercles, as in *P. tredecimnotata*.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith* [1]).

### 9. **Parawixia rigida.** (Tab. XLVI. figg. 18, 18 *a–c*, ♀.)

*Epeira rigida*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 36, t. 5. figg. 5, 5 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 11·5 millim.

Both rows of eyes decidedly recurved; the laterals subequal, the anteriors not, as in most of the allied species, larger. The legs are very similar, both in colour and spinulation, to those of *P. destricta*, but the two rings on femora i. and ii. are apical and basal, the latter only on the sides on i., while on iii. and iv. there are three, and also three on the tibiæ and protarsi of all four pairs. The vulva is characteristic, short and broad basally, gradually tapering to form a long narrow scapus, which is slightly dilate towards the apex and abruptly narrowed to a blunt point; in profile it presents a sinuous outline. The cephalic region as far as, and involving, the thoracic pit is deeply suffused with black. The abdomen (which is faded) bears five conical tubercles only—a pair at the anterior shoulders, and three at the apex, the median one being very small.

*Hab.* Panama, Bugaba (*Champion* [1]).

## CYCLOSA.

*Cyclosa*, Menge, Preuss. Spinn. p. 73 (1866).

*Turckheimia*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 46 (1889).

Type of *Cyclosa*, *C. conica* (De Geer) = *C. conica* (Pallas), 1772, Europe; of *Turckheimia*, *T. nodosa*, O. P.-Cambr., Guatemala.

♂. Coxa i. with a conspicuous hook, and femur ii. with a groove. Coxa and femur of pedipalp with coniform spur and chitinous ridge respectively. Coxa iv. (in the type species) with two spines. Tibia ii. scarcely incrassate, bearing a single row of three specialized spines on the inner side and three below. Patella of pedipalp with a single apical spine; tarsal sheath with a chitinous uncus.

♂ & ♀. Posterior central eyes almost in contact, central quadrangle narrower behind, eyes subequal. Lateral eye-groups set on prominent tubercles, projecting well in advance of the mandibles, anterior centrals also prominent. Both rows recurved.

♀. Cephalic region separated from the thoracic by a deep semicircular groove, the latter portion being raised. Vulva consisting of a short, slender scapus (of variable form in the different species), with the lateral sclerites well-developed.

It is by no means easy to find reliable characters for the separation of the typical forms of *Cyclosa* from others usually referred to *Aranea*; and as Simon (Hist. Nat. Araign. édit. 2, i. p. 829) refers *C. lacerta*, O. P.-Cambr., and *Turckheimia walckenaeri*, O. P.-Cambr., to this genus, there can be no possible grounds for separating the other species belonging to these two genera under a group-name Cycloseæ. The females of *T. walckenaeri*, which Simon definitely removes from the Cycloseæ, exhibit very strongly the "*profond sillon entier et semicirculaire*" on which this author bases his separation of the Cycloseæ from other allied groups. This character is, however, found in the female sex only. It is possible that the spiders included under *Turckheimia* may eventually prove to be separable as a genus distinct from *Cyclosa*, but I can at present find no characters really reliable for this purpose, and I leave them all under the older generic name.

The species known to me may be distinguished by the following characters :—

*Males.*

A. Coxa iv. with two spines . . . . . *conica*, Pallas.
B. Coxa iv. without spines.
  *a*. The lamella-claviformis (clavis) of the palpal bulb on the outer lower side dilate apically . . . . . *tuberculifera*, O. P.-Cambr.
  *b*. The clavis of the palpal bulb not dilate apically.
    $a^1$. The clavis of the palpal bulb only very slightly falciform (see Plate) . . . . . *culta*, O. P.-Cambr.
    $b^1$. The clavis very decidedly falciform (see Plate) . . . . . *lacerta*, O. P.-Cambr.

*Females.*

A. Abdomen without definite shoulder-tubercles.
  *a*. Abdomen short, triangular, produced above, behind, into a stout coniform hump . . . . . *conica*.
  *b*. Abdomen elongate, not produced behind.
    $a^1$. Abdomen plainly outlined behind, not bifid nor tuberculate . . . . . *caroli*, Hentz.
    $b^1$. Abdomen bifid, trifid, or tuberculate behind.
      $a^2$. Abdomen with a small coniform prominence at its apex . *conigera*, sp. n.
      $b^2$. Abdomen bifid or trifid behind.
        $a^3$. Abdomen bifid behind . . . . . *furcata*, O. P.-Cambr.
        $b^3$. Abdomen trifid behind . . . . . *trifida*, sp. n.
B. Abdomen with from two to four tubercles above and in front.
  $a^4$. Abdomen with four small tubercles above and in front, bifid at its apex . . . . . *bifurca*, McCook.
  $b^4$. Abdomen with two tubercles only above and in front, not bifid at its apex.
    $a^5$. Abdomen with four tubercles at its apex.
      $a^6$. Abdomen elongate, not quadrate.
        $a^7$. Abdomen shorter and broader, in profile more triangular. Scapus of vulva longer, base bilobate . . . *walckenaeri*, O. P.-Cambr.
        $b^7$. Abdomen longer, narrower and more compressed, in profile. Scapus of vulva shorter, base not bilobate . *diversa*, O. P.-Cambr.
      $b^6$. Abdomen quadrate . . . . . *nodosa*, O. P.-Cambr.
    $b^5$. Abdomen with one tubercle at its apex.
      $a^8$. Apical tubercle longer and more slender; shoulder-tubercles simple, coniform . . . . . *index*, O. P.-Cambr.
      $b^8$. Apical tubercle shorter and stouter; shoulder-tubercles with a sharp point directed backwards . . . . . *clara*, O. P.-Cambr.

Note.—I have not seen a male of *C. caroli*, *C. bifurca*, or *C. walckenaeri*, and their characters cannot therefore be inserted in the table. *C. fusiformis*, Tacz., is also unknown to me.

### 1. **Cyclosa conica.** (Tab. XLVI. figg. 19, 19 *a*, *b*, ♂; 20, 20 *a*, *b*, ♀.)

*Aranea conica*, Pallas, Spicil. Zool. i. p. 48, t. 1. fig. 16 (♀)[1].

*Cyclosa conica*, Emerton, Trans. Conn. Acad. Sci. vi. p. 321, t. 34. figg. 3, 3 *a* (♀), t. 38. fig. 11 (♂)[2]; Keyserl. Spinn. Amer., Epeiridæ, p. 276, t. 14. figg. 205, 205 *a–c* (♀), 205 *d–f* (♂)[3]; Marx, Proc. U.S. Nat. Mus. xii. p. 549[4]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 256[5].

[Nec *C. conica*, McCook, Amer. Spiders, iii. pp. 225, 226, t. 17. figg. 3, 3 *a–c* (♀), 4, 4 *a*, *b* (♂).]

*Epeira caudata*, Hentz, Journ. Bost. Soc. Nat. Hist. vi. p. 23, t. 3. figg. 14, 14 *a* (♀), 14 *b* (♂)[6]; Spid. U.S. (ed. Burgess), p. 126, t. 14. figg. 14, 14 *a* (♀), 14 *b* (♂)[7].

*Hab.* North America[2 4 6 7], California[3].—Mexico, Guaymas (*fide Banks*[5]).—Europe[1].

The examples figured on our Plate are from the New Forest, England, and the species is included in the Central-American fauna solely on the authority of Mr. Banks. The male may be known from that of the allied species by the presence on coxa iv. of two short, subequal spines. The palpal organs differ also in several particulars, but more especially in the form of the lamella-claviformis, which is strongly dilate apically, its lower angle being sharp and depressed. The femora are strongly spinose: i. has seven or eight spines on the apical half beneath, ii. seven spines extending from the apex to the base, and iii. two spines about the middle; iv. is unarmed beneath. The female may be recognized by the shape of the abdomen and the form of the vulva. Judging by the figures, Emerton's identification of *C. conica* seems to be correct; and one must accept his, the first, identification of *Epeira caudata*, Hentz.

### 2. **Cyclosa tuberculifera.** (Tab. XLVII. fig. 1, ♂.)

*Cyclosa tuberculifera*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 269, t. 36. figg. 10, 10 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 2·75 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

This species, of which there is a single adult male in the collection, may be recognized by the form of the lamella-claviformis (or clavis) of the palpus, see Plate.

### 3. **Cyclosa culta.** (Tab. XLVII. figg. 2, 2 *a*, ♂.)

*Cyclosa culta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 112, t. 14. figg. 12, 12 *a–d* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 3·75 millim.

*Hab.* Mexico, Sierra de las Aguas Escondidas, near Omilteme, in Guerrero, 9500 feet (*H. H. Smith*[1]).

*C. culta*, of which I have seen two adult males, may be separated from both *C. conica* and *C. tuberculifera* by the form of the "clavis" of the palpus.

4. **Cyclosa lacerta.** (Tab. XLVII. fig. 3, ♂.)

*Cyclosa lacerta*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 50[1].

*Epeira lacerta*, O. P.-Cambr. loc. cit. p. x, t. 7. figg. 14, 14 *a–c* (♂)[2].

Type, ♂, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* GUATEMALA, between Chichochoc and Coban (*Sarg* [1]); PANAMA, Bugaba (*Champion* [1]).

Easily distinguishable from the allied forms by the shape of the clavis of the palpal bulb.

5. **Cyclosa caroli.** (Tab. XLVII. figg. 4, 4 *a*, *b*, ♀.)

*Epeira caroli*, Hentz, Journ. Bost. Soc. Nat. Hist. vi. p. 24, t. 3. fig. 15 (♀)[1]; Spid. U.S. (ed. Burgess), p. 138, t. 14. fig. 15 (♀)[2]; Keyserl. Sitzungsb. nat. Ges. Isis, Dresden, 1863, p. 137, t. 6. figg. 17 (♀), 18, 19 (♂)[3]; Spinn. Amer., Epeiridæ, p. 272, t. 14. figg. 202, 202 *a*, *b* (♀), 202 *c–e* (♂)[4]; Marx, Proc. U.S. Nat. Mus. xii. p. 549[5]; McCook, Amer. Spid. iii. p. 277, t. 17. figg. 7, 7 *a–c* (♀), 8, 8 *a–b* (♂)[6]; E. Simon, P. Z. S. 1897, p. 873[7].

*Hab.* NORTH AMERICA [1–6], Southern United States [7].—MEXICO, Amula in Guerrero (*H. H. Smith*).—COLOMBIA, Bogota [3 4]; VENEZUELA [7]; ANTILLES, St. Vincent [7].

It appears to me highly probable that the spider here figured under the above name is identical with the form referred to *Epeira caroli*, Hentz, by McCook, and one must for the present accept his identification of the species. Different examples vary very much in colour, but its characteristics lie in the plain, fusiform apex of the abdomen, and the short, broad, spatuliform scapus of the vulva.

6. **Cyclosa conigera,** sp. n. (Tab. XLVII. figg. 5, 5 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6·5 millim.

*Hab.* MEXICO, Omilteme in Guerrero (*H. H. Smith*).

This species very much resembles *C. caroli* in general appearance, but in the examples before me there is always present a small cone in the centre of the apex of the abdomen behind. The scape of the vulva also is narrow and elongate, not broad, short, and spatuliform as in *C. caroli*.

7. **Cyclosa furcata.** (Tab. XLVII. figg. 6, 6 *a–d*, ♀.)

*Cyclosa furcata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 247, t. 31. figg. 3, 3 *a–e* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 10 millim.

*Hab.* MEXICO, Amula in Guerrero (*H. H. Smith* [1]).

Very like *C. bifurca*, McCook, but without tubercles on the anterior part of the abdomen; the vulva also differs very much in form (see Plate).

### 8. **Cyclosa trifida,** sp. n. (Tab. XLVII. figg. 7, 7 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* GUATEMALA, Cahabon (*Sarg*).

The abdomen of this species is broad, elongate, and parallel-sided, having four very small tubercles at the apex, where it appears to be transversely truncate. The vulva is characteristic, though similar in general structure to that of several allied forms.

### 9. **Cyclosa bifurca.** (Tab. XLVII. figg. 8, 8 *a–d*, ♀.)

*Cyrtophora bifurca,* McCook, Proc. Acad. Phil. 1887, p. 342[1].

*Cyclosa bifurca,* McCook, Amer. Spid. i. p. 128[2]; ii. pp. 189, 372, 376[3]; iii. p. 227, t. 17. figg. 10 (♂), 9, 9 *a–d* (♀)[4]; Marx, Proc. U.S. Nat. Mus. xii. p. 549[5].

*Cyclosa fissicauda,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 49, t. 8. figg. 7, 7 *a–c* (♀) (1893)[6]; Keyserl. Spinn. Amer. iv. p. 274, t. 14. figg. 203, 203 *a, b* (♀)[7].

Type ♀, androtype ♂, of *C. bifurca* in coll. McCook; of *C. fissicauda* in coll. Godman & Salvin.

Carapace very convex behind, thoracic portion separated from the cephalic by a deep semicircular groove. Posterior eyes half a diameter apart, smaller than the anteriors; posterior row slightly recurved. Lateral eyes almost in contact, anteriors distinctly smaller. Central quadrangle narrower behind, broader than long. Patella of palpus with a single anterior spine. Femora without spines beneath. Abdomen apically bifid, with four conical warts, the first pair behind the shoulders, the second wider apart and further back. The vulva consists of an oblong white area above, deeply grooved transversely, towards its anterior margin, forming a thin chitinous marginal plate; posteriorly it overhangs slightly, and the surface is here marked with a deep **V**-shaped groove.

*Hab.* NORTH AMERICA, Florida [1–5].—MEXICO, Orizaba (*H. H. Smith*); GUATEMALA[7], Dolores, Chapallal, Chisec (*Sarg*[6]).

E. Simon (Hist. Nat. Araign. édit. 2, i. p. 795) has placed this species under *Larinia,* but nearly every character given for the recognition of that genus is wanting in the type (♀) of *C. fissicauda.* It has the carapace very convex behind; the central eyes not subequal, the anterior side of the central quadrangle not nearly double the width of the posterior; the lateral eyes very distinctly unequal; and there is no "uncus" to the vulva at all. Unfortunately, I have been unable to find a male example in the collection before me, and cannot say therefore whether the coxa i. has the hook or not. But the female evidently comes near *Cyclosa,* where I leave it for the present, though it may have to be removed at some future time.

### 10. **Cyclosa walckenaeri.** (Tab. XLVII. figg. 9, 9 *a–d*, ♀.)

*Turckheimia walckenaerii,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. 47, 269, t. 8. figg. 6, 6 *a–c* (♀) (1889)[1].

*Epeira walckenaerii,* Keyserl. Spinn. Amer., Epeiridæ, p. 98, t. 5. figg. 73, 73 *a–c* (♀), 73 *d–f* (♂)[2].

*Cyclosa walckenaerii,* McCook, Amer. Spid. iii. p. 226, t. 17. figg. 1, 1 *a–d* (♀), 2, 2 *a, b* (♂)[3].

*Cyclosa cervicula*, McCook, loc. cit. t. 17. figg. 1, 2 (♂ ♀)[4].
*Epeira bifurcata*, Keyserl. Sitzungsb. nat. Ges. Isis, Dresden, 1863, p. 142, t. 6. figg. 22 (♀), 23 (♂)[5].

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* NORTH AMERICA, California[3].—MEXICO, Atoyac in Vera Cruz (*H. H. Smith*); GUATEMALA[2], Volcan de Fuego, Chiacam (*Sarg*[1]).—COLOMBIA[2 5]; BRAZIL[2].

### 11. **Cyclosa diversa.** (Tab. XLVII. figg. 10, 10 *a*, *b*, ♀.)

*Turckheimia diversa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 136, t. 16. figg. 11, 11 *a–c* (♀)[1].
*Turckheimia scelesta*, O. P.-Cambr. loc. cit. p. 268, t. 39. figg. 10, 10 *a–e* (♀)[2].

Types, ♀, in coll. Godman & Salvin. Total length 5·5 millim.

*Hab.* MEXICO, Teapa, Atoyac (*H. H. Smith*[1]); COSTA RICA, San José (*Tristan and Biolley, ex Sarg*[2]).

The type of *T. scelesta* has the vulva malformed, but is otherwise obviously identical with *T. diversa*. This species bears a general resemblance to *C. walckenaeri*, but in the latter the abdomen is shorter, broader, more triangular, less compressed, and the tubercles less developed. The scapus of the vulva is much shorter than in *C. walckenaeri*, and the basal portion is not bilobate.

### 12. **Cyclosa nodosa.** (Tab. XLVII. fig. 11, ♀.)

*Turckheimia nodosa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 47, t. 4. figg. 11, 11 *a*, *b* (♀)[1].

Type, ♀, immature, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* GUATEMALA, Chicoyoito (*Turckheim*[1]).

The vulva of the type of this species is not developed, but the character of the abdominal tubercles renders it probable that *C. nodosa* will prove to be specifically distinct (see table and Plate).

### 13. **Cyclosa index.** (Tab. XLVII. figg. 12, 12 *a–c*, ♀.)

*Cyclosa index*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 51, t. 6. figg. 6, 6 *a–c* (♀)[1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 256[2].

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* LOWER CALIFORNIA (*fide Banks*[2]).—GUATEMALA, Tamahu, Coban, Cubilguitz (*Sarg*[1]).

It is impossible at present to decide whether *C. turbinata*, McCook, *C. caudata* (Hentz), and *C. index*, O. P.-Cambr., are identical or not; and for the time being I leave the examples of *C. index* before me under the name they were described. They can be distinguished from *C. clara* by the longer and more pointed tubercle at the apex

of the abdomen, and by the shape of the shoulder-tubercles, which have no sharp angle posteriorly. The vulva, too, differs in detail, see Plate.

### 14. **Cyclosa clara.** (Tab. XLVII. figg. 13, 13 *a*, *b*, ♀.)

*Cyclosa clara*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 248, t. 31. figg. 8, 8 *a–e* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*[1]).

### 15. **Cyclosa fusiformis.**

*Cyrtophora fusiformis*, Tacz. Horæ Soc. Ent. Ross. xiv. p. 173, t. 12. fig. 22[1]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 256[2].

? = *Turckheimia diversa*, O. P.-Cambr. (sec. Banks).

*Hab.* North America, California[2].—Mexico, Orizaba, Tepic[2].—Peru[1].

## WAGNERIANA, nom. nov.

*Wagneria**, McCook, Amer. Spid. iii. p. 203 (1895).

Type *W. tauricornis* (O. P.-Cambr.). Guatemala.

♂. Coxa i. with a hook and femur ii. with the correlated groove. A wart above coxa i. at its base. Coxa and femur of pedipalp with a coniform spur and chitinous ridge respectively. Tibia ii. incrassate, with three spines on the underside, and two series of spines on the inner side—five spines on the upper margin and six on the lower. Femur i. without spines beneath, ii. and iv. with a series of four or five, iii. with one or two spines beneath. Patella of pedipalp with a single apical spine. Tarsal sheath with a conspicuous uncus at its base. Lateral eye-groups slightly prominent. Central quadrangle somewhat raised, narrower behind. Posterior central eyes three-fourths of a diameter apart, a little smaller than the anterior centrals. Posterior row strongly recurved; anterior row straight. Trochanter iv. with a single spine. Abdomen with a pair of shoulder-cusps, a single lateral on each side, and four apical cusps, variable in number in the different species and sexes. Protarsi i. and ii. almost devoid of spines beneath (occasionally one at the base).

♀. Carapace broad in front, convex behind the eyes. Central quadrangle slightly narrower in front; posterior eyes a little smaller, half a diameter apart. Posterior row slightly recurved. Anterior row straight. Laterals one-eighth of a diameter apart, separated from the posterior centrals by a space equal to one and a half times that occupied by the latter. Femora i.–iv. without spines beneath. Tibiæ and protarsi i. and ii. devoid of spines beneath, iii. & iv. with a few. Abdomen (in the type) with two shoulder-cusps, each more or less bifid, three laterals on each side, and five apical cusps. Scapus of vulva fused to the basal portion, its apex short and lamelliform.

The species occurring in the collection may be recognized as follows:—

*Males.*

*a*. Trochanter iv. with a single short spine. Lamella of palpal bulb not deeply bifid.

*a*¹. Clavis of palpal bulb with a long, thin lamella lying beneath the convex outer lobe . . . . . *tauricornis*, O. P.-Cambr.

*b*¹. Clavis of palpal bulb without a lower lamella.

*a*². Clavis of palpal bulb with a thin carina on the underside, and a short cusp on the outer margin anteriorly . . . . . *carinata*, sp. n.

*b*². Clavis of palpal bulb without a thin carina, with a broad

* This name is preoccupied five times in Zoology.

triangular spur at the posterior angle and another blunt cusp above on the inner posterior margin . . . . . 11-*tuberculata,* Keyserl.

*b*. Trochanter iv. with two short spines. Lamella of palpal bulb deeply and broadly bifid . . . . . *spicata,* O. P.-Cambr.

*Females.*

*a*. Carapace without the pair of conspicuous curved spines in front of the thoracic fovea. For vulva, see Plate . . . . . *tauricornis.*

*b*. Carapace with a pair of conspicuous curved spines in front of the thoracic fovea.

*a*[1]. Shoulder-cusps of abdomen bifid. Apex of abdomen not prolonged. For vulva, see Plate . . . . . *spicata.*

*b*[1]. Shoulder-cusps of abdomen not bifid. Apex of abdomen prolonged. For vulva, see Plate . . . . . 11-*tuberculata.*

Note.—The number of cusps on the abdomen is not constant. Of *W. tauricornis* there are two varieties: (1) the type, which has the shoulder-cusp bifid and three lateral cusps present; (2) a form with the shoulder-cusp simple and two lateral cusps only present.

1. **Wagneriana tauricornis.** (Tab. XLVII. figg. 14, 14 *a*, *b*, ♂; 15, 15 *a–c*, ♀.)

*Epeira tauricornis,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. x & 44, t. 6. figg. 2, 2 *a–c* (♂), 3, 3 *a–c* (♀), t. 8. figg. 2, 2 *a–c* (♀)[1] [nec figg. 1, 1 *a* (♂)]; Keyserl. Spinn. Amer., Epeiridæ, p. 90, t. 4. figg. 68 *c*, *d* (♂), 68, 68 *a*, *b* (♀)[2].

*Epeira guatemalensis,* O. P.-Cambr. loc. cit. p. 40, t. 7. figg. 8, 8 *a–c* (♂)[3].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4·5, ♀ 5·5 millim.

*Hab.* North America[2].—Mexico (*Peckham*[2]); Guatemala[2], Tamahu, Cubilguitz[1], Coban, Cahabon[1], Chiacam, Dolores, Cuajiniquilapa, Quezaltepeque[1] (*Sarg*); Panama, Bugaba, Volcan de Chiriqui (*Champion*[1]).—Colombia, Bogota[2].

The general characters of the male and female of this species are given in the generic diagnosis; for specific differences, see Table and Plate.

2. **Wagneriana carinata,** sp. n. (Tab. XLVII. fig. 16, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Guatemala, Coban (*Sarg*).

This spider closely resembles *W.* 11-*tuberculata*, and may possibly prove to be a variety of that species. The specific difference lies in the form of the clavis of the palpal bulb, which can be best recognized by reference to the Plate and figure. Trochanter iv. has a single spine.

3. **Wagneriana 11-tuberculata.** (Tab. XLVII. figg. 17, 17 *a*, *b*, ♂; 18, 18 *a–c*, ♀.)

*Epeira* 11-*tuberculata,* Keyserl. Verh. zool.-bot. Ges. Wien, xv. p. 805, t. 18. figg. 1 (♀), 2 (♂) (1865)[1]; Spinn. Amer., Epeiridæ, p. 92, t. 4. figg. 69 *d*, *e* (♂), 69, 69 *a–c* (♀)[2].

Type ♂, gynetype ♀, in Mus. Brit. Total length, ♂ 6·8, ♀ 9 millim.

The ♂ of this species differs from the type of the genus, *W. tauricornis*, not only in its specific characters, but in the form of the abdomen, which is prolonged apically, the central cusp being very long. The underside of tibia ii. has three spines; the inner side two series of 6—6 spines irregularly paired. Trochanter iv. bears a single spine. The lamina of the palpal organs is bilobate, but not so deeply bifid as in *W. spicata*, while the clavis is concave beneath, with a sharp cusp at its posterior angle and a less conspicuous one above.

The ♀ differs from that of its allies in having the abdomen prolonged apically into a large central lobe, bearing four sharp cusps, and a wart behind, the shoulder-spines being long, sharp, and single, and there are two lateral cusps on each side. The carapace has a pair of spines in front of the thoracic fovea, as has also the female of *W. spicata*. The vulva, similar in general character to that of *W. spicata*, differs specially in the form of the area enclosed by the chitinous margin, which occupies almost the whole of the underside of the basal portion, see Plate and figures.

*Hab.* GUATEMALA [2]; PANAMA, Bugaba (*Champion*).—COLOMBIA [1 2].

### 4. **Wagneriana spicata.** (Tab. XLVII. figg. 19, 19 *a*, *b*, ♂; 20, 20 *a*, *b*, ♀.)

*Epeira spicata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 45, t. 6. figg. 4, 4 *a* (♂) [1].

*Turckheimia armata*, O. P.-Cambr. loc. cit. p. 114, t. 14. figg. 14, 14 *a–f* (♀) [2].

Type, ♂ (immature), of *E. spicata*, and type ♀ and deuterotype ♂ of *T. armata*, in coll. Godman & Salvin.
Total length, ♂ 8, ♀ 11·25 millim.

The general characters of this species will be found under the generic diagnosis.

In the ♂ the abdomen is similar in character to that of the female. Tibia ii. has six spines beneath on the under margin and five on the upper. Trochanter iv. bears two short spines. The palpal organs are quite different in the specialization of the parts from those of *W. tauricornis* and its allies. The lamella is much more highly developed, very broad, deeply and broadly bifid, forming two sharp spurs. The clavis is comparatively less conspicuous, broad and concave beneath, with a carina marking the outer margin of the concavity.

The ♀ also resembles the type-species in general characters, the most noticeable difference, besides the form of the vulva, being the presence of a pair of stout spines in front of the thoracic fovea. This character is also present in *W.* 11-*tuberculata*, and the sockets are very distinct even when the spines themselves have been rubbed off. The abdomen is not unlike that of *W. tauricornis*, but the two cusps on each shoulder-tubercle are situated side by side, and not one behind the other. The vulva differs considerably from that of *W. tauricornis*, more resembling that of *W.* 11-*tuberculata*. It consists of a broad, triangular, transversely rugulose basal portion, the scapus being short and bluntly pointed; on the underside the chitinous margin encloses a circular space round the base of the scapus, and a more or less oval space below this, see Plate and figures.

*Hab.* MEXICO, Rincon in Guerrero (*H. H. Smith* [2]); GUATEMALA, Motagua (*Sarg* [1]).

I have little doubt, judging from the general characters of the two spiders, that the immature male type is identical with the adult here described in detail.

## EDRICUS.

*Edricus*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 57 (1890).

*Salassia*, Getaz, An. Inst. Costa Rica, iv. p. 105 (1893) (nomen præocc.).

*Salassina*, E. Simon, Hist. Nat. Araign. édit. 2, i. p. 781, note 2 (1895).

Type of *Edricus*, *E. spinigerus*, O. P.-Cambr., Panama; of *Salassia*, *S. tricuspis*, Getaz, Costa Rica; of *Salassina*, *S. crassicauda* (Keyserl.), South America.

♀. Cephalic area separated from the thoracic by a deep semicircular groove. Femora i. and ii. with a series of setigerous tubercles in front. Legs otherwise entirely devoid of spines. Tibiæ i. and ii. sinuous, seen in profile. Central quadrangle of eyes slightly wider behind, central posteriors half a diameter apart.

Lateral eye-groups set on slightly prominent tubercles. Vulva without scapus. Mandibles with two teeth above and three below.

Since the publication of my Table of the genera of the Araneinæ (*anteà*, pp. 454–457), the male of this genus has been detected, and *Salassina* proves to be identical with *Edricus*, O. P.-Cambr.*

### 1. **Edricus spinigerus.** (Tab. XLIX. figg. 25, 25 *a*, ♂.)

*Edricus spinigerus*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 57, t. 4. figg. 1, 1 *a–f* (♂)[1];
Keyserl. Spinn. Amer., Epeiridæ, p. 33, t. 2. figg. 30, 30 *a–d* (♂)[2].

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* GUATEMALA[2]; PANAMA, Bugaba (*Champion*[1]).

It is very probable that *E. spinigerus* is the male of *E. crassicauda* or *E. tricuspis*.

### 2. **Edricus productus.** (Tab. XLIX. figg. 26, 26 *a*, *b*, ♂.)

*Edricus productus*, O. P.-Cambr. Biol. Centr.-Amer., Arach. Aran. i. p. 186, t. 23. figg. 5, 5 *a–e* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* MEXICO, Cuernavaca in Morelos (*H. H. Smith*[1]).

### 3. **Edricus crassicauda.** (*Salassina crassicauda*, Tab. XLVII. figg. 21, 21 *a*, *b*, ♀.)

*Epeira crassicauda*, Keyserl. Verh. zool.-bot. Ges. Wien, xv. p. 806, t. 18. figg. 3, 4 (♀) (1865)[1].

*Cyclosa crassicauda*, Keyserl. Spinn. Amer., Epeiridæ, p. 270, t. 14. figg. 200, 200 *a* (♀)[2].

Type, ♀, in Mus. Brit. Total length 7·5 millim.

*Hab.* MEXICO, Mexico city, Atoyac (*H. H. Smith*); GUATEMALA, Chicoyoito (*Sarg*); PANAMA, Bugaba (*Champion*).—COLOMBIA[1 2].

### 4. **Edricus tricuspis.**

*Salassia tricuspis*, Getaz, An. Inst. Costa Rica, iv. p. 105 (1893)[1].

Type, ♀, in Mus. Costa Rica. Total length 5 millim.

*Hab.* COSTA RICA (*Getaz*[1]).

* The position which *Edricus*, as represented by the male, should hold in the table of genera on p. 455 is as follows:—

*a*⁷. Tibia ii. with an apophysis near the middle or towards the apex, bearing one or two spines.
  *a*⁸. Tibia ii. with a stout apophysis near the middle, bearing a pair of spines at its apex . . . . . VERRUCOSA, McCook.
  *b*⁸. Tibia ii. with a more slender apophysis towards the apex, bearing a single, long, stout, apical spine . . . . . EDRICUS, O. P.-Cambr. (SALASSINA, Simon).
*b*⁷. Tibia ii. without a central or apical apophysis.
  *a*⁹. Central quadrangle of eyes not narrower behind . . . . . WIXIA, O. P.-Cambr.
  *b*⁹. Central quadrangle of eyes narrower behind.

## METAZYGIA, gen. nov.

Type *M. wittfeldæ* (McCook)*. North America.

♂. Coxa i. with a hook and femur ii. with a groove. Coxa and femur of pedipalp with a coniform spur and chitinous ridge respectively. Coxa i. with a small tubercle above. Tibia ii. not incrassate, with a series of two spines and two bristles beneath, and a single spine on the inner side close to the base, on the upper margin; with a series of five spines on the lower margin of the inner side, the apical pair close together, stouter and more specialized. Patella of pedipalp bearing a single apical spine. Femora i.–iv. without spines beneath. Tarsal sheath of palpus with a well-developed basal uncus; tibia enlarged on the outer side. Eye-groups not prominent. Posterior and anterior rows slightly recurved. Central quadrangle much narrower behind; posterior eyes slightly smaller, less than half a diameter apart; anterior centrals two diameters apart. Lateral eyes one-third of a diameter apart. Coxæ and trochanters i., iii., and iv. without spines or spurs. Patella of legs with a fine apical bristle only.

♀. Carapace convex behind the eyes, not gibbous in the thoracic region. Eyes situated as in the male. Sternum slightly longer than broad. Lower margin of fang-groove with three teeth. Legs armed with numerous short spines, especially on the inner side of tibiæ and protarsi i. and ii. Femora i.–iv. entirely devoid of spines beneath. Vulva with a very short tuberculiform scapus. Abdomen oval. Colulus present. Protarsi i. and ii. with spines beneath.

The two species occurring in the collection may be known as follows :—

*Females.*

1. Posterior margin of vulva convex, not bilobate. Apex of scapus, seen in profile, more or less unciform . . . . . *wittfeldæ*, McCook.
2. Posterior margin of vulva concave in the middle, deeply bilobate. Apex of scapus, seen in profile, not unciform . . . . . *gregalis*, O. P.-Cambr.

### 1. **Metazygia wittfeldæ.** (Tab. XLVII. figg. 22, ♂; 23, 23 *a–c*, ♀.)

*Epeira wittfeldæ*, McCook, Amer. Spid. iii. p. 168, t. 7. figg. 6, 6 *a–c* (♀), 7, 7 *a*, *b* (♂)[1].

Type ♀, androtype ♂, in coll. McCook. Total length, ♀ 9, ♂ 7 millim.

A large species, with dark brown cephalic area, pale yellow-brown legs, and clay-yellow abdomen, with a large central scalloped folium, outlined in black.

In the ♀ the femora are without spines beneath. The central quadrangle of eyes is smaller behind, the posterior eyes being almost in contact. In both sexes tibiæ i. and ii. bear four or five fine auditory hairs on each side, on the upper basal area; and one or two on tibiæ iii. and iv. In the ♂ the hook on coxa i. is present, and tibia ii. bears one or two specialized spines at its apex on the inner side. The patella of the palpus has a single spine only.

*Hab.* North America, Florida[1].—Mexico, Mexican boundary, Tuxtla (*H. H. Smith*).

Without being able to state with certainty, it is highly probable that the specimens before me from Mexico are identical with McCook's species. The scapus of the vulva of the female is not, however, in any of these examples free at its apex, forming a hook, as represented in McCook's figure.

### 2. **Metazygia gregalis.** (Tab. XLVII. figg. 24, 24 *a–f*, ♀.)

*Epeira gregalis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 22, t. 5. figg. 3, 3 *a–c* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 177, t. 9. figg. 131, 131 *a* (♀), 131 *b*, *c* (♂)[2].

Type, ♀, in coll. Godman & Salvin. Total length 8–10 millim.

*Hab.* Guatemala[2]; Costa Rica (*Rogers*); Panama, Veragua (*Boucard*[1]).—Brazil[2].

* The species here identified, described and figured as *M. wittfeldæ* (McCook).

The two examples in the collection are similar in general characters, both of structure and pattern, to *M. wittfeldæ*, but the form of the vulva (see Plate) is quite different in detail, and is sufficient for purposes of identification. One cannot say for certain whether the example figured as a variety really belongs here.

## ACACESIA.

*Acacesia*, E. Simon, Hist. Nat. Araign. édit. 2, i. p. 795 (1895).

Type *A. foliata* (Hentz)=*A. folifera*, Marx. North America.

♂. Coxa i. with a hook and femur ii. with a groove. Coxa and femur of pedipalp with a coniform spur and chitinous ridge respectively. Coxa i. with a large coniform spur basally above. Tibia ii. incrassate, without series of spines on the inner side, but with two or more spines towards the base, one or two very long central spines, and two or more shorter curved spines towards the apex of the underside of the segment. Patella of pedipalp with a single apical spine. Femur i. without spines, ii. with a series of five spines in the apical half; iii. and iv. with a few spines beneath. Tarsal sheath of palpus with a well-developed basal uncus; tibia not bilobate. Eye-groups not prominent. Posterior row of eyes very strongly recurved; anterior row straight by the margin of the clypeus. Central quadrangle slightly narrower behind; posterior eyes much smaller, two diameters apart; anterior centrals separated by three-fourths of a diameter. Coxa and trochanter iv. with a short, stout spine; ii. and iii. devoid of spines or spurs.

♀. Carapace slightly gibbous on each side of the central groove, but inclining upwards towards the eyes. Eye-formula practically the same as in the ♂, but the eyes of the central quadrangle more widely separate. Sternum not longer than broad. Lower margin of fang-groove with three teeth. Legs armed with very fine spines only; femora entirely devoid of spines beneath. Vulva with the scapus short and broad, fused to the basal portion; directed backwards. Colulus present. Protarsi with one or two very fine spines beneath.

Simon makes a curious mistake in referring *Epeira vegeta*, Keyserl., to this genus, since it obviously belongs to *Eustala*, in which the vulva of the female is directed forwards, and the male has specialized spines on tibia ii. Keyserling's species presents neither of these characters.

### 1. **Acacesia foliata.** (Tab. XLVIII. figg. 1, 1 *a–c*, ♂; 2, 2 *a–e*, ♀.)

*Epeira foliata*, Hentz, Journ. Bost. Soc. Nat. Hist. v. p. 475, t. 31. fig. 14 (♀)[1]; Spid. U.S. (ed. Burgess), p. 116, t. 13. fig. 14, t. 18. fig. 50 (♀)[2]; Emerton, Trans. Conn. Acad. Sci. vi. p. 318, t. 37. figg. 7, 8, 10 (♂), 6, 9 (♀)[3]; McCook, Amer. Spid. iii. p. 154, t. 4. figg. 8, 8 *a* (♂), 7 (♀)[4]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 255[5].

*Epeira folifera*, Marx, Proc. U.S. Nat. Mus. xii. pp. 545, 593[6].

*Hab.* North America[1–4 6].—Mexico, Tepic (*fide Banks*[5]), Misantla (*F. D. G.*), Atoyac, Teapa (*H. H. Smith*); Guatemala, Chicoyoito (*Sarg*); Costa Rica (*Rogers*); Panama, Bugaba (*Champion*).

Emerton's identification of this species is most likely correct, and since his are the first recognizable figures one must accept it as final. There is no reasonable doubt that the examples in our collection are identical with Emerton's specimens, unless there are several closely allied forms. The species, too, figured in McCook's work is

also probably the same, though the sketch of the palpus of the male leaves much to be desired in point of definition, while the vulva of the female is not figured.

## EUSTALA.

*Eustala*, E. Simon, Hist. Nat. Araign. édit. 2, i. p. 795 (1895).

Type *E. anastera*, Walck. North America.

♂. Coxa i. with a hook and femur ii. with a groove. Coxa and femur of pedipalp with a coniform spur and chitinous ridge respectively. Coxa i. with a small tubercle above towards its base. Tibia ii. slightly incrassate, with three or four spines beneath and a double series of 6—5 long spines, the upper series longer, on the inner side, besides dorsal spines. Patella of pedipalp bearing a single apical spine. Femur i. with a series of three spines on the apical fourth, ii. with four spines about the middle, and iii. and iv. devoid of spines, beneath. Tarsal sheath of palpus with a well-developed basal uncus; tibia bilobate. Lateral eye-groups very slightly prominent. Central anterior eyes prominent. Posterior row very slightly recurved; laterals very small, one-fourth of a diameter apart. Anterior row straight. Central quadrangle broader than long, narrower behind; central posteriors small, one diameter apart; central anteriors much larger, one full diameter apart. Coxæ and trochanters ii., iii., and iv. without spurs or spines.

♀. Carapace very convex, or gibbous, on each side of the central groove, much depressed towards the eyes. Posterior row of eyes very much recurved; anterior row straight, by the margin of the clypeus. Central quadrangle less narrow behind than in the male, otherwise the eye-formula is similar. Sternum one-half longer than broad. Lower margin of fang-groove with three teeth. Legs armed with short spines; femora i.–iv. entirely devoid of spines beneath. Vulva with the scapus and base fused together, the scapus directed forwards. Abdomen triangular (very elongate in some species), projecting beyond the spinners. Colulus present. Protarsi i.–iv. with spines beneath.

The type of this genus, *E. anastera*, Walck., is a species of very doubtful identity, and it is possible that all the varieties quoted by McCook are correctly referred to it by him. There are, however, no data for either confirming his decisions on the matter or the contrary, so that one can only settle which particular form we are to regard as Walckenaer's species. McCook was the first to give a definite description and figure of the vulva of the female, by which we can with certainty understand what he means by *E. anastera*, Walck. One cannot be quite so confident as to the identity of the male, the palpus of which is figured by the same author; but the "conductor" certainly looks as though the species were identical with that referred to *E. parvula*, Keyserl., by Emerton, the females of this latter evidently belonging to *E. anastera*, McCook. In the case of the male, I here take Emerton's decision, for there is no doubt about the identity of the species whose palpus he figures (Trans. Conn. Acad. Sci. vi.) under the name *E. parvula*. Simon is certainly wrong in referring *E. illicita*, O. P.-Cambr., to *Larinia*, of which the species have no coxal hook in the male sex. Equally incorrect is this author in referring *E. vegeta*, Keyserl., to *Acacesia*; this species has no special affinity with *A. folifera*, Marx, = *A. foliata*, Hentz, but has the scape of the vulva "*antice directus*," a character which separates the genus *Eustala* from *Acacesia*, according to Simon's own diagnosis.

*Males.*

A. Abdomen elongate, narrow.
  1. Uncus of palpus almost straight from base to apex, the latter broader and irregularly serrate on the inner margin . . . . . *fuscovittata,* Keyserl.
  2. Uncus of palpus strongly curved from base to apex, not serrate on inner margin, slightly recurved and aculeate at apex . . . . . *illicita,* O. P.-Cambr.

B. Abdomen not elongate, triangular-oval.
  *a.* Conductor of palpus, lying beneath the apex of the embolus, much more prolonged, and more densely clothed with short setoid cusps. Apical lobes much more densely setose . . . . . *anastera,* Walck.
  *b.* Conductor of palpus quite short, very sparsely clothed, chiefly at the apex, with setoid cusps. Apical lobes very sparsely setose.
    $a^1$. Uncus of palpus with a strong transverse conical basal enlargement . . . . . *bifida,* sp. n.
    $b^1$. Uncus of palpus plain, without transverse enlargement at the base.
      $a^2$. Embolus of palpal bulb longer in proportion. Basal portion of uncus much broader, apex slightly recurved . . . . . *scutigera,* O. P.-Cambr.
      $b^2$. Embolus of palpal bulb shorter in proportion. Basal portion of uncus narrower, apex regularly curved, falciform.
        $a^3$. Uncus of palpus with an enlarged shoulder on the inner margin . . . . . *guttata,* sp. n.
        $b^3$. Uncus of palpus without enlarged shoulder on the inner margin . . . . . *vegeta,* Keyserl.

*Females.*

A. Abdomen narrow, elongate.
  1. Abdomen more prolonged behind, forming a sharp conical point; vulva much broader, not abruptly constricted near the apex . . *fuscovittata.*
  2. Abdomen less prolonged behind, forming a short, bluntly rounded cone; vulva narrower, abruptly constricted near its apex, then dilate . . . . . *illicita.*

B. Abdomen broad, rounded-triangular.
  *a.* Ventral area of abdomen with a single central elongate-oval, or linear, white spot, immediately behind the genital rima.
    $a^1$. Hairs on the abdomen not enlarged basally, simply and gradually aculeate towards apex.
      $a^2$. Abdomen with a large central dorsal folium, with dentated margins. Scapus of vulva much longer.
        $a^3$. Abdomen not bituberculate at the apex; simply rounded, sometimes slightly conical.
          $a^4$. Scapus of vulva longer, broad basally, gradually or abruptly narrowed to a fine point; the basal portion transversely and strongly striate.
            $a^5$. Scapus not abruptly narrowed . . . . . *anastera.*

$b^5$. Scapus abruptly narrowed at its apex.
  $a^8$. Orifices (marked by circular black spots) not more than one diameter apart . . . . . *scutigera.*
  $b^8$. Orifices from two to three diameters apart . . . . *vegeta.*
$b^4$. Scapus of vulva shorter, very narrow basally, not transversely striate.
  $a^7$. Scapus narrower, in profile broader basally, the shoulders more prominent, the inner area of the horseshoe-shaped portion elongate-oval . . . . . *guttata.*
  $b^7$. Scapus broader, in profile narrow and bilobate basally, the shoulders less prominent, the inner area of the horseshoe-shaped portion transverse-oval . . . . *latebricola,* O.P.-Cambr.
$b^3$. Abdomen bituberculate at the apex . . . . . *bifida.*
$b^2$. Abdomen simply dull white, without central folium. Scapus of vulva much shorter . . . . . *fragilis,* O. P.-Cambr.
$b^1$. Hairs on the abdomen enlarged basally . . . . . *clavispina,* O. P.-Cambr.
*b*. Ventral area of abdomen with a pair of circular white spots, transversely situated in front of the spinners . . . . . *semifoliata,* O. P.-Cambr.

## 1. **Eustala fuscovittata.** (Tab. XLVIII. figg. 3, 3 *a*, ♂; 4, 4 *a–d*, ♀.)

*Epeira fuscovittata,* Keyserl. Sitzungsb. nat. Ges. Isis, Dresden, 1863, p. 129, t. 6. figg. 7, 8 (♀)[1]; Spinn. Amer., Epeiridæ, p. 251, t. 13. figg. 187 *b, c* (♂), 187, 187 *a* (♀)[2]; E. Simon, P. Z. S. 1897, p. 873[3].

*Epeira caudata,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 255, t. 15. fig. 5 (♂ ♀)[4] (nec Hentz).

? *Cyclosa thorelli,* McCook, Amer. Spid. iii. p. 228, t. 19. figg. 11, 11 *a–c* (♀)[5].

Type ♂, gynetype ♀, of *E. caudata,* in coll. Calif. Acad.

*Hab.* MEXICO, Tepic (*fide Banks*[4]), Atoyac, Teapa (*H. H. Smith*)); GUATEMALA[2], Chiacam, Sakiyac, Cahabon, Choctum (*Sarg*).—COLOMBIA[1 2]; VENEZUELA[3]; AMAZONS (*F. P.-C.*); ANTILLES, St. Vincent[3].

This species is evidently widely distributed throughout Central and South America, and probably occurs in the Gulf States of North America, if, as is highly probable, the evidently immature example from Florida, described by McCook as *Cyclosa thorelli*[5], is referable to it. The latter, however, of which the scapus of the vulva of the female is larger, broader, and not abruptly dilate at its apex, is quite distinct from *E. illicita,* O. P.-Cambr. The sketches given by Banks of the male palpus and vulva leave little doubt that his *E. caudata* is also identical with *E. fuscovittata,* Keyserl.; the lateral clavis on the palpal bulb of the males of this spider is also quite distinct in form from that of the same sex of *E. illicita.*

The female varies a good deal in form, having a broad-oval abdomen when pregnant, while the vulva, too, though preserving its unmistakable character, is variable in shape.

2. **Eustala illicita.** (Tab. XLVIII. figg. 5, ♂; 6, 6 *a–e*, ♀.)

*Epeira illicita*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 17, t. 6. figg. 16, 16 *a–c* (♀)[1].

*Epeira cambridgii*, Keyserl. Spinn. Amer., Epeiridæ, p. 255, t. 13. figg. 190, 190 *a*, *b* (♀)[2].

Type ♀, deuterotype ♂, in coll. Godman & Salvin. Total length, ♀ 8–10, ♂ 5 millim.

*Hab.* MEXICO, Atoyac, Teapa (*H. H. Smith*[1]); GUATEMALA[2], Chapallal, Yzabal, Guatemala city (*Sarg*[1]).

The female of this species is less elongate and the abdomen is not so much produced at the apex as in *E. fuscovittata*, while the legs are usually more strongly annulate, and the scapus of the vulva is abruptly dilate at its apex, forming a triangular bilobate process. The lateral clavis of the palpus of the male, too, is distinct in form, see Plate.

3. **Eustala anastera.** (Tab. XLVIII. figg. 7, 7 *a*, *b*, ♂; 8, 8 *a*, *b*, ♀.)

*Eustala anastera*, Walck. Ins. Apt. ii. p. 33[1]; Abbot, Georgian Spiders, no. 381 (♀)[2]; McCook, Amer. Spid. iii. p. 172, t. 8. figg. 1, 1 *a–g* (♀), 2, 2 *a*, 3 (♂)[3]; E. Simon, P. Z. S. 1897, p. 873[4].

*Epeira parvula*, Keyserl. Sitzungsb. nat. Ges. Isis, Dresden, 1863, p. 131, t. 6. figg. 9, 10 (♀)[5]; Emerton, Trans. Conn. Acad. Sci. vi. p. 317, t. 34. figg. 12, 12 *a*, *b*, *c* (♀), t. 37. figg. 1 (♂), 2 (♀)[6].

? *Epeira prompta* (Hentz), Banks, Proc. Calif. Acad. Sci. (3) i. p. 253[7].

Type, ♀, of *E. anastera* (= Abbot's figure no. 381) and of *E. parvula*, ♀, in Mus. Brit.; deuterotype, ♂, of *E. parvula*, in coll. Emerton. Total length, ♂ 3–5, ♀ 5–7 millim.

*Hab.* NORTH AMERICA[1–3 5 6]; LOWER CALIFORNIA (*fide Banks*[7]).—MEXICO, Tepic (*fide Banks*[7]), Orizaba, Acapulco, Teapa (*H. H. Smith*); GUATEMALA, Huehuetenango, Antigua (*Sarg*); COSTA RICA, San José (*Sarg*).—ANTILLES, St. Vincent[4].

The male of this spider can be instantly recognized by the form of the conductor of the palpal embolus, it being much longer than in the allied species and densely setose, while the various sclerites at the apex of the bulb are densely covered throughout with small cusps. The uncus of the palpus is slender and uniformly sinuous, not enlarged basally, see Table and Plate.

The female may also be easily identified by the elongate, wedge-shaped, transversely furrowed scapus of the vulva, basally broad, gradually narrowed to a point, which is seen, in profile, to be curved downwards, forming a slender hook. This scapus is somewhat variable in form, especially as regards the shape of the basal horseshoe-shaped portion, which usually presents a couple of minute pits, see Table and Plate.

As regards the identification of *Epeira anastera*, Walck., one must accept that given by McCook. The species thus named by him is certainly, if the figure of the vulva is to be regarded as conclusive, not separable from *E. parvula*, Keyserl. (♀), of which the types from Wisconsin are now before me. It is identical, too, with the

female of Emerton's *E. parvula*, and with many examples in our collection. The striking variety, in which the abdomen presents a large shield-shaped brown patch in the centre, characteristic also of *E. scutigera*, O. P.-Cambr., occurs amongst Keyserling's examples. The abdomen varies very much in colour.

Emerton was the first author who assigned a male to the species, in connection with any recognizable characters, and his figure of the palpus proves that the examples thus named by him are identical also with those which I find in the collection of Keyserling, who, however, did not characterize them when he described *E. parvula*. Several males exhibiting similar marks of distinction occur in our Central-American material in company with females which I refer to *E. anastera*.

It is evidently a very abundant species. H. H. Smith remarks :—"Swarms on low growth in the cacao-plantations and in shady woods everywhere; frequently a hundred or more may be seen in the space of a square yard, under and on the top of the leaves. They were found spinning a perpendicular, geometrical, orb-web of 5–7 inches in diameter."

4. **Eustala bifida,** sp. n. (Tab. XLVIII. figg. 9, 9 *a–c*, ♂; 10, 10 *a–c*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 6, ♀ 10 millim.

♂. Colour similar to that of the ♀ (see below). Palpus: the tarsal hook is dilate, but in a less bilobate form than in *E. guttata*; the clavis has no cavity at its base on the inner side, merely a small, elongate apophysis, which bears a few hairs at its apex; the conductor is short, broadly rounded at its apex, and studded with setæ; the uncus is much dilated at its base, the point coming out from beneath the more or less transverse basal portion; the embolus is broad, spatuliform at its apex, and the apical sclerite of the bulb is only moderately setose or cuspulate.

♀. Colour very variable: carapace dull orange, mottled with brown; legs dull orange, the apical half of the femora brown, the other segments mottled and annulated with brown; sternum brown, with a large yellow central patch; abdomen dull yellow-white, with a large brown dentate central folium, the sides mottled with brown, the ventral area brown, with a white central elongate blotch. Central quadrangle of eyes as wide behind as, or slightly wider (in the male slightly narrower) than, in front. Abdomen bifid behind, exhibiting two conical tubercles. Vulva characteristic, the scapus being short, broad dorsally, and attenuate apically; the horseshoe-shaped portion broad and widely open anteriorly, the orifices marked by very prominent, shining, black tubercles, two and a half diameters apart, the area being deeply and broadly furrowed longitudinally in the middle. Viewed laterally, the tubercles are much more prominent than in the other species here described.

*Hab.* Costa Rica, San José (*Tristan*).

This form appears to be quite distinct, and it can be distinguished from the other species of the genus by its large size, the shape of the uncus of the palpus in the male, and by that of the vulva in the female. *E. conchlea*, McCook, from California and Florida, seems to be an allied species; it is a large form, and has one tubercle on the apex of the abdomen. The female of *E. clavispina* is also bituberculate at the apex of the abdomen, but it can readily be distinguished by the nature of the spines and the form of the vulva.

### 5. **Eustala scutigera.** (Tab. XLVIII. figg. 11, ♂; 12, 12 *a–g*, ♀.)

*Epeira scutigera*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 243, t. 33. figg. 8, 8 *a–e* (♀)[1].

*Epeira nava*, O. P.-Cambr. loc. cit. p. 300, t. 37. figg. 5, 5 *a–d* (♀)[2].

Type ♀, deuterotype ♂, of *E. scutigera*, and type, ♀, of *E. nava*, in coll. Godman & Salvin. Total length, ♀ 6, ♂ 4 millim.

*Hab.* MEXICO, Teapa in Tabasco [1 2], Acapulco (*H. H. Smith*); GUATEMALA, Cahabon, San Juan Chamelco, Coban (*Sarg*); PANAMA, Bugaba (*Champion*).

The male of this species can be distinguished from that of *E. vegeta* by the form of the palpal uncus and conductor. The vulva of the female, in all the examples before me, is very similar to that of *E. vegeta*, but the orifices are not more than one diameter apart. The carapace is usually without spots.

### 6. **Eustala guttata,** sp. n. (Tab. XLVIII. figg. 13, 13 *a–d*, ♂; 14, 14 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 7 millim.

♂. Colour similar to that of the ♀ (see below). The palpus presents the same general characters as in other allied species, but the uncus has a rounded shoulder on the inner side basally, without a large conical development as in *E. bifida*. The conductor is very similar to that of *E. vegeta*, but not so obtusely rounded at its apex, while the embolus is narrower apically and much longer proportionately than in that species.

♀. Carapace dull yellow, with six minute punctiform black spots, in two transverse rows of two and four, across the middle. Legs yellow; femora, tibiæ, and protarsi with two dark annuli, tarsi apically dark, the other segments speckled with black or dark brown. Abdomen dull cretaceous-white, with a central, dentated, mottled brown folium, the exact pattern and coloration being very variable; ventral area with the usual dull white elongate central spot. Sternum entirely yellow. The vulva is characteristic, though much resembling that of *E. latebricola*. The scapus is very narrow and slender, not broad or transversely wrinkled basally as in other allied species, while the anterior margins (or shoulders) of the basal portion are rounded, hard, and chitinous. The black spots which mark the orifices are usually almost in contact, but never more than one diameter apart. In profile, the scapus is much broader basally than in *E. latebricola*. The six small black spots on the carapace are present in all the examples before me, but are also found in *E. vegeta*, &c.

*Hab.* MEXICO, Orizaba, Teapa (*H. H. Smith*); GUATEMALA, Coban, Cahabon (*Sarg*); PANAMA, Bugaba (*Champion*).

### 7. **Eustala latebricola.** (Tab. XLVIII. figg. 15, 15 *a*, ♀.)

*Epeira latebricola*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 31, t. 8. figg. 4, 4 *a*, *b* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 150, t. 7. figg. 110, 110 *a* (♀)[2].

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* GUATEMALA[2]; PANAMA, Bugaba (*Champion*[1]).

The resemblance of the type of this species to *Cyrtarachne*, noted in Vol. I., is simply due to the fact that the specimen is shrunk and the outline distorted.

8. **Eustala vegeta.** (Tab. XLVIII. figg. 16, ♂; 17, 17 *a*, *b*, ♀.)

*Epeira vegeta*, Keyserl. Verh. zool.-bot. Ges. Wien, xv. p. 819, t. 19. figg. 31–34 (♀) (1865) [1]; Spinn. Amer., Epeiridæ, p. 144, t. 7. figg. 106 *b–e* (♂), 106, 106 *a* (♀) [2].

Type ♂, gynetype ♀, in Mus. Brit. Total length, ♂ 6·2, ♀ 7·3 millim.

*Hab.* Mexico [2], Atoyac in Vera Cruz (*H. H. Smith*); Guatemala [2].—Colombia [1]; Brazil [2].

The male of this species closely resembles that of *E. scutigera*, but the uncus of the palpus is of a different shape and the conductor is not sharply angled. The embolus itself is shorter than in *E. guttata*, and the uncus in this latter is also dissimilar in form, see Table and Plate. The vulva of the female is characteristic, the clavis broad and transversely wrinkled at the base, abruptly narrowed apically, the black spots marking the orifices being at least two diameters apart. The dorsal folium of the abdomen is liable to the same variation which is characteristic of the type of *E. scutigera*, as also is that of *E. anastera*.

9. **Eustala fragilis.** (Tab. XLVIII. figg. 18, 18 *a*, ♀.)

*Epeira fragilis*, O. P.-Cambr. Biol.-Centr. Amer., Arachn. Aran. i. p. 23, t. 4. figg. 18, 18 *a–c* (♀) [1]; Keyserl. Spinn. Amer., Epeiridæ, p. 186, t. 9. figg. 137, 137 *a* (♀) [2].

Type, ♀, in coll. Godman & Salvin. Total length 3·5 millim.

*Hab.* Guatemala [2]; Panama, Bugaba (*Champion* [1]).

10. **Eustala clavispina.** (Tab. XLVIII. figg. 19, 19 *a*, ♀.)

*Epeira clavispina*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 37, t. 7. figg. 11, 11 *a–d* (♀) [1]; Keyserl. Spinn. Amer., Epeiridæ, p. 102, t. 5. figg. 75, 75 *a–c* (♀) [2]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 253 [3].

*Amamra nigromaculata*, O. P.-Cambr. loc. cit. p. 155, t. 19. figg. 5, 5 *a–e* (♀) [4].

Type, ♀, of *E. clavispina*, and that of *E. nigromaculata*, ♀, in coll. Godman & Salvin. Total length 9–12·25 millim.

Abdomen bituberculate behind, in profile; clothed with short scattered hairs; abruptly dilate basally, apically aculeate. Carapace and legs dull orange, femora with two black annuli towards the apex, nearly obsolete on iii. and iv.; other segments faintly annulate; protarsi with a basal, median, and apical annulus. Abdomen clay-yellow, with bistre-brown markings, especially on the sides; the pattern usually consisting of a narrow, brown, central line, with the sides slashed upwards from below. *Vulva* similar in general character to that of other allied species. Scapus, seen from below, broad, elongate, flattened, usually dilate, and rounded at the apex; the horseshoe-shaped portion narrowly open in front, with a single low tubercle anteriorly in the centre, and a characteristic deep fovea on each side, the central area being much broader than long and comparatively small.

*Hab.* Lower California [3].—Mexico, Teapa in Tabasco (*H. H. Smith* [4]); Guatemala [2], Cubilguitz in Vera Paz (*Sarg* [1]).

Banks treats *Epeira conchlea*, McCook, as synonymous with *E. clavispina*, but this identification is not at all likely to be correct.

### 11. **Eustala semifoliata.** (Tab. XLVIII. figg. 20, 20 *a*, ♀.)

*Epeira semifoliata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 301, t. 36. figg. 3, 3 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

Carapace dull orange-yellow, with six small black spots on the central stria and two smaller ones behind the posterior eyes. Legs orange-yellow; femora almost entirely suffused with brown, the other segments lightly annulated with brown. Sternum in great part yellow. Abdomen yellow-white, with a narrow dark dentated band in the apical half (the posterior portion of the usual folium); ventral area brown, this colour extending upwards over the lateral margins, with four very small white spots round the spinners and two large rounded white spots between the latter and the genital rima. Ocular area very prominent in the centre, quadrangle slightly narrower behind. *Vulva* broad and short; scapus very broad basally, transversely wrinkled, abruptly narrowed and curving downwards at its apex, and deeply indented dorsally at the sides.

*Hab.* Guatemala, Cahabon (*Sarg*); Costa Rica (*Sarg*[1]).

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The following species are placed for the present under the name *Aranea*, since it is next to impossible to determine their generic affinities with any degree of accuracy. They are as far as possible brought together into their natural groups. The forms described in Vol. I. under the genera *Kaira*, *Carepalxis*, *Scoloderus*, and *Cyrtarachne* represent good and distinct groups; *Cyrtarachne* 10-*tuberculata* belongs, however, to Simon's genus *Glyptogona*. *Epeiroides fasciolata*, O. P.-Cambr., must be referred to the Theriosommatinæ; *Hentzia trivittata*, O. P.-Cambr., probably to the Metinæ.

### 1. **Aranea sinistra,** sp. n. (Tab. XLVIII. figg. 21, 21 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 20 millim.

General characters similar to those of *Epeira destricta*, O. P.-Cambr., but the lateral eye-groups are further removed from the central quadrangle, and the abdomen has only one pair of coniform tubercles—a tubercle on each anterior shoulder. Tibiæ i. and ii. with 6—6 long spines on each side beneath. Patella of the palpus with a pair of apical spines. Vulva very broad at the base and dilate, the scapus being broad and concave above, recurved, with a narrow, central, longitudinal carina, see Plate. The carapace is dusky yellow-brown, the whole body being clothed with coarse yellow hairs. All the segments of the legs marked with dusky brown apical and median annuli, the femora having a basal one as well; the tarsi and patellæ with a single apical annulus only. The abdomen, which is somewhat faded in colour, has the usual white cross-mark on the centre anteriorly, with a narrow, elongate, ⩘-shaped, dentate folium behind; the sides mottled with umber-brown; ventral area with a broad black central band, enclosing an elongate-oval yellow blotch on each side anteriorly, these latter again enclosing an oval black-brown spot.

*Hab.* Mexico, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

No males which I can refer to this species occur in the collection, and the females described possibly belong near the group of which *Epeira destricta* is the type.

### 2. **Aranea nephiloides.** (Tab. XLVIII. figg. 22, 22 *a*, *b*, ♀.)

*Epeira nephiloides*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 32, t. 7. figg. 2, 2 *a–c* (♀), 1, 1 *a* (♀, var.)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 222, t. 11. figg. 165, 165 *a*, *b* (♀)[2]; McCook, Amer. Spid. iii. p. 190, t. 14. figg. 5, 6, 6 *a*, *b*, t. 22. figg. 6, 6 *a–c* (♀)[3].

Type, ♀, in coll. Godman & Salvin. Total length 17 millim.

*Hab.* North America[3], California[3].—Guatemala[2 3], Dolores, Cubilguitz, Menché, Panzos (*Sarg*[1]).

This fine species, of which the male is at present unknown to me, will probably fall either into or near the group of which *Epeira purpurascens* is the type.

### 3. **Aranea smithi.** (Tab. XLIX. figg. 1, 1 *a*, *b*, ♀.)

*Epeira smithi*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 280, t. 37. figg. 4, 4 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 12 millim.

*Hab.* Mexico, Orizaba (*H. H. Smith*[1]).

Probably belongs to the same group as the preceding.

### 4. **Aranea sargi.** (Tab. XLIX. figg. 2, 2 *a–c*, ♀.)

*Epeira sargi*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 28, t. 6. figg. 5, 5 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 8·5 millim.

*Hab.* Guatemala, Chilasco (*Sarg*[1]).

Another species apparently related to *Epeira purpurascens*.

### 5. **Aranea concolorata,** sp. n. (Tab. XLIX. figg. 3, 3 *a–c*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

Carapace, mandibles, legs, sternum, and abdomen pale primrose-yellow (possibly grass-green in life). Femora without, and the tibiæ and protarsi with, spines beneath; patellæ with an apical bristle. Mandibles with three teeth on the lower margin of the fang-groove. Both rows of eyes straight; central quadrangle narrower behind; eyes subequal, posteriors one diameter, and anteriors one and a half diameters, apart. Sternum scarcely longer than broad.

*Vulva* produced into a short scapus, whose apex is recurved, having a rounded tubercle on each side, see Plate.

*Hab.* Panama, Veragua (*Boucard*).

### 6. **Aranea gravabilis.** (Tab. XLIX. figg. 4, 4 *a–c*, ♀.)

*Epeira gravabilis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 33, t. 5. figg. 7 7 *a–c* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

*Hab.* Panama, Volcan de Chiriqui (*Champion*[1]).

### 7. **Aranea aculifera.** (Tab. XLIX. figg. 5, 5 *a–c*, ♀.)

*Epeira aculifera,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 29, t. 7. figg. 3, 3 *a–c* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 207, t. 10. figg. 153, 153 *a, b* (♀)[2].

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* GUATEMALA[2], Volcan de Fuego (*Sarg*[1]).

### 8. **Aranea glabrata,** sp. n. (Tab. XLIX. figg. 6, 6 *a–e*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

Carapace brown, paler at the base of the cephalic area and on the margins. Sternum and mandibles brown. Legs yellow, apex of tibiæ brown. Abdomen with a large, oval, yellow, dorsal patch, bearing a central darker-outlined folium, which is often obsolete; a broad yellow band running round it, separating the black lateral area from the ventral, not meeting in front and converging towards the spinners behind, thence carried upwards on each side in a broken line to meet the yellow dorsal patch; ventral area black, with a single pale spot in the middle on each side.

Tibiæ and protarsi i. and ii. with spines beneath; patellæ without apical spine; femora without spines beneath. Both rows of eyes straight; central quadrangle narrower behind, posterior centrals smaller, half a diameter apart.

*Vulva* furnished with a long excentrically sinuous scapus, the first lobe coiled over to the right; its apex attenuate, not spatuliform.

*Hab.* PANAMA, Bugaba (*Champion*).

### 9. **Aranea bispinosa.**

*Epeira bispinosa,* Keyserl. Verh. zool.-bot. Ges. Wien, xxxiv. p. 531, t. 13. fig. 30 (♀) (1884)[1]; Spinn. Amer., Epeiridæ, p. 124, t. 6. fig. 92 (♀)[2]; McCook, Amer. Spid. iii. p. 180, t. 9. fig. 3 (♀)[3].

Type, ♀, in Mus. Cambridge, U.S.A. Total length 5·3 millim.

*Hab.* NORTH AMERICA, California[1 2 3], Arizona[2 3].—PANAMA[3].—ANTILLES, Haiti[3].

This species, of which good figures are given in both Keyserling's and McCook's works, belongs to the same group as *A. anguinifera*, described below.

### 10. **Aranea incerta.** (Tab. XLIX. figg. 7, ♂; 8, 8 *a–c*, ♀.)

*Epeira incerta,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 23, t. 4. figg. 15, 15 *a–c* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 163, t. 8. figg. 120, 120 *a, b* (♀)[2].

*Epeira fecunda,* O. P.-Cambr. loc. cit. p. 26, t. 6. figg. 9, 9 *a–c* (♂), 10, 10 *a* (♀)[3]; Keyserl. loc. cit. p. 164, t. 8. figg. 121, 121 *a, b* (♀), 121 *c–e* (♂)[4].

Type ♀, deuterotype ♂, of *E. incerta*, and type ♂, gynetype ♀, of *E. fecunda*, in coll. Godman & Salvin. Total length, ♀ 8, ♂ 4·5 millim.

♂ ♀. Colour very variable. Carapace, mandibles, sternum, and legs yellow-orange, the former often with a dark central line; the legs sometimes with dark annuli at the apex of the segments, the femora frequently suffused with brown. Abdomen in some specimens with a well-marked folium, in others unicolorous, or mottled white and brown, the most constant marking being an elongate, white, central, anterior, dorsal patch with a dark marginal spot on each side. When present, the folium is usually outlined in black, anteriorly by a circular black line turned inwards, forming an angle behind, followed by a series of transverse black bars, their extreme ends being bent and directed forwards, the bars becoming shorter and the ends obsolete as they approach the spinners. The folium is usually bordered with a broad pale band; the lateral area is dark; below this lies another pale area, while the ventral area again is dark,

with a dull pale central band. Eyes subsimilar in the two sexes, the characteristic features being more emphasized in the male; central quadrangle narrower behind, posterior centrals being in contact, the anteriors one diameter apart; both rows recurved, the anterior slightly but distinctly. Legs clothed with long, pale, oblique or almost erect hairs in both sexes.

♂. Coxa i. with a hook, femur ii. with a groove; coxa and femur of pedipalp with a ridge and groove respectively. Coxa i. with a small tubercle above. Patella of pedipalp with a single, long, curved, apical bristle. Femora of legs without spines beneath; i. with a pair of conspicuous, long, adjacent spines about the middle in front, besides other dorsal spines. Tibia ii. not incrassate, similar to tibia i., without any specialization of spines. Patellæ with a long apical spine. Legs otherwise also numerously spined.

*Palpus.* The bulb bears a long, broad, thin, curved, conspicuous conductor, apically broadened, but not abruptly dilate as in *A. dilatata*; an elongate dilate lamina, not concave on the outer side, its apex forming a short slightly curved point; and a short, stout, curved, serrate or cuspulate stylum.

♀. Legs spinose, with long hairs as in the ♂; femora without spines beneath. Patella with an apical bristle. Lower margin of fang-groove with three teeth. Sternum slightly longer than broad.

*Vulva* consisting of a convex base, concave above in the middle, bearing a small elongate scapus, attenuate when viewed from above, but seen in profile the apex is dilate, forming a circular, oval, thin, flat plate.

*Hab.* Mexico, Orizaba, Teapa (*H. H. Smith*); Guatemala [2] (*Sarg* [3], *Peckham* [4]), Encuentros de Boloneb, Tamahu, Cahabon (*Sarg*); Costa Rica (*Rogers* [1]).

The male of this spider may be distinguished from that of *A. dilatata* by the lamina of the palpal bulb being convex (not concave) and the conductor not abruptly dilate on the outer side at the apex. It appears to be an abundant species in Central America.

### 11. **Aranea dilatata,** sp. n. (Tab. XLIX. fig. 9, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Guatemala (*Sarg*).

Very like the male of *A. incerta*, but with the lamina of the palpal bulb concave (not convex), while the conductor is abruptly dilate on the outer side near its apex.

### 12. **Aranea helvola.** (Tab. XLIX. figg. 10, 10 *a–c*, ♀.)

*Epeira helvola,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 24, t. 5. figg. 1, 1 *a–c* (♂), 2, 2 *a*, *b* (♀) [1]; Keyserl. Spinn. Amer., Epeiridæ, p. 221, t. 11. figg. 164, 164 *a* (♀), 164 *b*, *c* (♂) [2].

*Epeira helveola,* Banks, Proc. Calif. Acad. Sci. (3) i. p. 253 [3].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5·25, ♀ 6 millim.

*Hab.* North America, California (*fide Banks, det. Marx* [3]).—Mexico, Ciudad in Durango (*Forrer* [1]); Guatemala [2].

### 13. **Aranea nigrocincta,** sp. n. (Tab. XLIX. figg. 11, 11 *a*, ♂; 12, 12 *a*, *b*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3·5, ♀ 5 millim.

♂ ♀. Carapace dull orange-brown, suffused with blackish in front; mandibles blackish; legs and sternum orange-brown. Abdomen globular, appearing pure white, owing to the numerous cretaceous spots, having a broad black zone in front. Posterior row of eyes slightly recurved, anterior row straight; central quadrangle narrower behind.

♂. Femora without spines beneath; tibia ii. not incrassate, but armed with five long spines on the inner side; patella with an apical spine; coxa iv., and sometimes also iii., with a single short, sharp spine. Patella of pedipalp with a single apical spine; coxa i. and femur ii. with well-developed hook and groove respectively; coxa and femur of pedipalp with a cusp and ridge, coxa i. with a small tubercle above. For palpal bulb, see Plate.

♀. Femora of legs without spines beneath; tibiæ and protarsi with a row of fine spines beneath; patellæ with an apical bristle.

*Vulva* consisting of a basal piece, with a long narrow scapus, having near its base on each side a rounded tubercle; the base of the scapus enlarged, corrugated, concave, having a small, concave, circular orifice on each side, and furnished anteriorly with a pencil of very long bristles.

*Hab.* PANAMA, Bugaba (*Champion*).

### 14. **Aranea pallidula.** (Tab. XLIX. figg. 13, 13 *a*, *b*, ♀.)

*Epeira pallidula*, Keyserl. Sitzungsb. nat. Ges. Isis, Dresden, 1863, p. 124, t. 4. figg. 14, 15 (♀)[1]; Spinn. Amer., Epeiridæ, p. 158, t. 8. figg. 116, 116 *a* (♀)[2].

Type, ♀, in Brit. Mus. Total length 8·5 millim.

♀. Carapace, mandibles, legs, and sternum pale orange-brown, a central cephalic line dusky brown and the apices of the leg-segments sometimes tinged with brown. Abdomen globular-ovate, almost entirely white; in some examples with an indistinct dentated dorsal folium; ventral area dull olive-brown. Femora of legs without spines beneath; tibiæ and protarsi i. and ii. with a double row of strong spines beneath; patellæ with an apical spine. *Vulva* exhibiting a slender scapus, laterally compressed and dilate at its apex, with a large ear-shaped orifice on each side.

*Hab.* PANAMA, Bugaba (*Champion*).—COLOMBIA, Bogota[1].

### 15. **Aranea anguinifera,** sp. n. (Tab. XLIX. figg. 14, 14 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4·5 millim.

Carapace, mandibles, and legs yellow, sternum dusky brown. Abdomen with a low shoulder-cusp on each side, black in front, white behind; with an indistinct folium, its apical half forming a broad, dusky, dentate band, whence, on each side, broken oblique dark lines run down to meet the brownish lateral areas; ventral area brown, margined laterally by a yellow (or pale) band. Tibiæ and protarsi i. and ii. with spines beneath; femora devoid of spines beneath. Patellæ with a stout apical spine. Central quadrangle of eyes square, not narrower behind, posterior centrals three-fourths of a diameter apart, larger than the anterior centrals. Both rows of eyes approximately straight.

*Vulva* very characteristic, its scapus being coiled across and across, the apical portion drawn back on itself, terminating in a flat spatula.

*Hab.* MEXICO, Omilteme in Guerrero 8000 feet (*H. H. Smith*).

This species belongs to a group of which *A. pacifica*, McCook, and *A. bispinosa*, McCook, in America, and *A. triguttata*, Fabr., and *A. sturmi*, Hahn, in Europe, are examples.

### 16. **Aranea septem-mammata.** (Tab. XLIX. figg. 15, 15 *a–c*, ♀.)

*Epeira septem-mammata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 42, t. 7. figg. 6, 6 *a–c* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 89, t. 4. figg. 67, 67 *a* (♀)[2].

Type, ♀, in coll. Godman & Salvin. Total length 5·5–7 millim.

*Hab.* GUATEMALA[2], Choctum (*Sarg*[1]).

### 17. **Aranea spinigera.** (Tab. XLIX. figg. 16, 16 *a–c*, ♀.)

*Epeira spinigera*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 43, t. 5. figg. 9 (♂), 10, 10 *a–c* (♀) [1]; Keyserl. Spinn. Amer., Epeiridæ, p. 131, t. 7. figg. 97, 97 *a*, *b* (♀) [2]; McCook, Amer. Spid. iii. p. 191, t. 14. figg. 3, 3 *a–d* (♀), 4 (♂) [3].

Type ♀, androtype ♂ (immature), in coll. Godman & Salvin. Total length, ♂ 4·5, ♀ 9 millim.

*Hab.* North America [3].—Guatemala [2]; Panama [2], Bugaba (*Champion* [1]).

### 18. **Aranea rufipes.** (Tab. XLIX. figg. 17, 17 *a–c*, ♀.)

*Epeira rufipes*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 31, t. 4. figg. 12, 12 *a–c* (♀) [1]; Keyserl. Spinn. Amer., Epeiridæ, p. 176, t. 8. figg. 130, 130 *a* (♀) [2].

Type, ♀, in coll. Godman & Salvin. Total length 9·75 millim.

*Hab.* Guatemala [2], Sabo in Vera Paz (*Champion* [1]).

### 19. **Aranea detrimentosa.** (Tab. XLIX. figg. 18, 18 *a*, ♀.)

*Epeira detrimentosa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 26, t. 6. figg. 7, 7 *a*, *b* (♂) [1]; Keyserl. Spinn. Amer., Epeiridæ, p. 137, t. 7. figg. 101, 101 *a–c* (♀), 101 *d*, *e* (♂) [2]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 253 [3].

*Epeira nigrohumeralis*, O. P.-Cambr. loc. cit. p. 111, t. 15. figg. 3, 3 *a–d* (♀) [4].

Type of *E. detrimentosa*, ♂, and of *E. nigrohumeralis*, ♀, in coll. Godman & Salvin; and deuterotype, ♀, in Mus. Brit. Total length, ♂ 2·25, ♀ 4·5 millim.

*Hab.* Mexico, Mazatlan (*fide Banks* [3]), Venta de Zopilote (*H. H. Smith* [4]); Guatemala [2], Petab, Chicoyoito, Chilasco (*Sarg* [1]), Antigua (*Stoll* [1]).

### 20. **Aranea cylindrica.** (Tab. XLIX. figg. 19, 19 *a*, ♂; 20, 20 *a–c*, ♀.)

*Epeira cylindrica*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 19, t. 7. figg. 12, 12 *a–c* (♂), 13, 13 *a*, *b* (♀) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5·75, ♀ 7–9 millim.

♂ ♀. Carapace, legs, mandibles, and sternum orange-yellow, the carapace having in the male broad brown marginal bands and a narrow dark central band. Abdomen pale yellow, with four narrow white longitudinal bands, a median anterior and posterior black spot, and a lateral anterior and posterior black spot on each side; lateral area with a broad black band, which takes a sudden dip towards the ventral area in the apical half; ventral area black, broadly margined with pale colour.

♂. Patella of pedipalp with a single apical spine. Coxa i. with a hook and femur ii. with a groove. Coxa and femur of pedipalp with a cusp and ridge respectively. Tibia ii. not incrassate, with three or four pairs of spines on the inner-under side. Femora without spines. Tibia i. with pairs of spines on the inner side.

♀. Posterior row of eyes slightly recurved, anterior row straight. Central quadrangle narrower behind, posterior centrals smaller, almost in contact. Femora without spines beneath; tibiæ and protarsi i. and ii. with pairs of spines beneath; patellæ without apical spine.

*Vulva* consisting of a convex chitinous hood, with a ⋀-shaped emargination posteriorly; concave beneath, with a central carina and an orifice on each side.

*Hab.* Guatemala, Saviexpúr, Cahabon (*Sarg* [1]).

### 21. **Aranea laticeps.** (Tab. XLIX. figg. 21, 21 *a–c*, ♀.)

*Epeira laticeps,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 18, t. 4. figg. 16, 16 *a–c* (♀) [1].

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

Carapace, sternum, and mandibles brown. Legs orange-yellow, the segments suffused with light brown apically. Abdomen dull white, with a narrow central dusky line, and an elongate folium formed by dusky blotches, margined with a pale line; lateral area dusky brown, with three obliquely curving pale bands in the apical third; ventral area black, broadly margined with pale colour. Anterior row of eyes straight, posterior row slightly recurved; central quadrangle narrower behind, posterior centrals smaller, half a diameter apart. Lower margin of fang-groove with three teeth. Femora i. with a row of six or seven sharp spines on the inner-under side; ii., iii., and iv. without spines beneath. Tibiæ and protarsi i. and ii. with spines beneath. Patellæ without apical spines.

*Vulva* consisting of a broad chitinous hood, concave above, its posterior margin sinuous and somewhat bent down.

*Hab.* PANAMA, Bugaba (*Champion* [1]).

### 22. **Aranea nigropustulata.** (Tab. XLIX. figg. 22, 22 *a–c*, ♀.)

*Epeira nigropustulata,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 111, t. 15. figg. 5, 5 *a*, *b* (♂) [1].

Type ♂ (immature), deuterotype ♀, in coll. Godman & Salvin. Total length, ♂ 5·5, ♀ 9 millim.

♀. Carapace, mandibles, and sternum yellow-brown or orange; legs yellow-brown, the apices of the tibiæ and those of tarsi iii. and iv. decidedly black, those of the other segments dusky brown. Abdomen yellow-white, with three partially united square black spots on each side of the anterior dorsal region, followed laterally at the apex by a black rounded boss, with two round black spots in a line between them; lateral area yellow-white; ventral area bearing a narrow brown band and a narrow, central, pale line. Femora of legs without spines beneath. Tibiæ and protarsi i. and ii. with a double series, somewhat irregular. of spines beneath. Lower margin of fang-groove with three teeth. Patellæ with a fine apical bristle only. Posterior row of eyes slightly recurved, anterior row straight; central quadrangle narrow behind, the eyes approximately equal; posterior centrals scarcely one diameter apart.

*Vulva* consisting of a convex chitinous hood, with a deep groove above, ending in a small scapus; beneath lie the usual cavities of characteristic dimensions and form.

*Hab.* MEXICO, Teapa in Tabasco (*H. H. Smith* [1]).

The male is immature and therefore its characters are of little value.

### 23. **Aranea veniliæ.** (Tab. XLIX. figg. 23, ♂; 24, 24 *a*, *b*, ♀.)

*Epeira veniliæ,* Keyserl. Verh. zool.-bot. Ges. Wien, xv. p. 817, t. 19. figg. 23 (♀), 24 (♂) (1865) [1]; Spinn. Amer., Epeiridæ, p. 256, t. 13. figg. 191 (♀), 191 *a* (♂) [2].

Type ♂, gynetype ♀, in Mus. Brit. Total length, ♂ 10, ♀ 14 millim.

♂ ♀. Carapace, mandibles, sternum, and mouth-parts unicolorous orange-yellow. Legs orange-yellow, the apices of all the segments with a black annulus. Abdomen pale yellow, with a dusky central folium divided by a median longitudinal yellow line, which is flanked on each side by a row of six or seven black, variously shaped, accent-like blotches; the latero-dorsal yellow band on each side bears five more or less elongate black spots, and below the yellow band, margining it, lie five more black spots, besides some broken black bands, which are more conspicuous in the apical half; ventral area black, or brown with black margins, bordered by a broad yellow band on each side.

Mandibles with three teeth on the lower margin of the fang-groove. Anterior row of eyes straight, posterior row slightly recurved. Central quadrangle narrower behind, posterior centrals smaller than the anterior centrals, half a diameter apart.

♂. Patella of pedipalp with one long sinuous spine, and a shorter sinuous bristle, at its apex. Coxa i. with a hook and femur ii. with a groove. Coxa and femur of pedipalp with a cusp and ridge respectively. Coxa i. with a conical protuberance above. Tibia ii. not specially incrassate, with a double series of five spines on the inner side, and a single row of four spines beneath. Femora i. without spines beneath; ii. with one or two short, stout, thorn-like spines; iii. and iv. with a variable number (six or seven) of spines of the same character in the basal half beneath. Protarsi i.–iv. with spines beneath. The palpal bulb has a conspicuous, stout, curved clavis.

♀. Femora of legs without spines beneath. Tibiæ and protarsi i. and ii. with spines in pairs beneath. Patellæ with an apical spine.

*Hab.* PANAMA, Bugaba (*Champion*).—COLOMBIA [1] [2]; LOWER AMAZONS, Santarem (*F. O. P.-C.*).

This fine species was very abundant in the grass-heads in the large "lago" opposite Santarem, across the mouth of the Tapajos.

### 24. **Aranea championi.** (Tab. L. figg. 1, 1 *a*, ♂; 2, 2 *a–c*, ♀.)

***Epeira championi,*** O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 42, t. 5. figg. 12, 12 *a*, *b* (♂), 13, 13 *a–c* (♀) [1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 3·75, ♀ 4·5 millim.

♂ ♀. Carapace, sternum, mandibles, and legs yellow. Abdomen olive-brown, with a long, white, central, dorsal folium, broken anteriorly and V-shaped posteriorly, but often divided into mere white spots, and with a broad dorso-lateral and a latero-ventral white band; ventral area olive-brown, without white spots. Posterior and anterior rows of eyes straight; central quadrangle square, posterior eyes larger, half a diameter apart.

♂. Femora i., ii., iv. without spines, iii. with a series of four or five short spines beneath. Coxa i. and femur ii. with a spur and groove respectively. Coxa and femur of pedipalp each with a cusp and ridge. Coxa i. with a tubercle above. Tibia ii. not incrassate, with a double series of four pairs of spines on the inner side. Patella of pedipalp with a single apical spine only.

♀. Femora and protarsi without spines beneath; tibiæ with one or two, patellæ without apical spines. *Vulva* consisting of a chitinous hood, with apex bent backwards forming a small scapus.

*Hab.* GUATEMALA [1]; PANAMA, Bugaba (*Champion*).

### 25. **Aranea mormon.** (Tab. LI. figg. 1, 1 *a*, *b*, ♀.)

***Epeira mormon,*** Keyserl. Spinn. Amer., Epeiridæ, p. 182, t. 9. figg. 134, 134 *a* (♀) [1].

Type, ♀, in coll. Marx. Total length 5·3 millim.

Carapace yellow, with a central dark line; mandibles and legs yellow; sternum blackish. Abdomen bearing an olive-yellow dorsal folium, slightly dentate behind, with a central white band on the anterior two-thirds, and a broad white marginal band on each side; lateral area olive-yellow; ventral area black, broadly margined with white, and bearing a pair of longitudinal white bars on the anterior half. Femora without, and tibiæ and protarsi with, spines beneath; patellæ with an apical spine. Both rows of eyes straight; central quadrangle narrower behind, posterior eyes one-fourth of a diameter apart, very slightly smaller than the anteriors. Mandibles with three teeth on the lower margin of the fang-groove.

*Vulva* consisting of a chitinous hood, posteriorly developed into a short, broad, spatulate scapus, with a round tubercle on each side, and a small deep cavity on the inner side of the tubercle.

*Hab.* NORTH AMERICA, Columbia and Utah [1].—MEXICO, Mexico city (*H. H. Smith*).

### 26. **Aranea graphica.** (Tab. LI. figg. 2, 2 *a*, ♂.)

*Epeira graphica,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 22, t. 7. figg. 16, 16 *a–c* (♂)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 121, t. 6. figg. 89, 89 *a* (♂)[2].

Type ♂, in coll. Godman & Salvin. Total length 3·5 millim.

Carapace yellow, cephalic area brown; legs pale yellow-white, suffused with dusky brown; mandibles pale yellow; sternum pale yellow, with a blackish central spot. Abdomen mottled with black and pale yellow, with a wide central folium margined with black spots, and a conspicuous anterior, dorsal, central, elongate white spot. Femora and protarsi i. and ii. without spines beneath. Tibia ii. not incrassate, with 4—2 long spines on the inner side. Patella of pedipalp with a single spine at the apex, that of the legs without apical spine (the scars only appear on the apex of the patella of the pedipalp). The embolus of the palpal bulb is quite characteristic, see Plate.

*Hab.* GUATEMALA[2]; PANAMA, Bugaba (*Champion*[1]).

### 27. **Aranea flava.** (Tab. LI. fig. 3, ♂.)

*Singa flava,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. x, 136[1].
*Singa lutea,* O. P.-Cambr. loc. cit. t. 17. figg. 15, 15 *a–d* (♂)[2].

Type, ♂, in coll. Godman & Salvin. Total length 3 millim.

*Hab.* MEXICO, Tierra Colorada (*H. H. Smith*[1]).

### 28. **Aranea cyrtophoroides,** sp. n. (Tab. LI. figg. 4, 4 *a–d*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 10 millim.

Carapace, legs, sternum, and mandibles dull orange-brown. Abdomen clay-yellow-brown, with a shoulder-cusp on each side, anteriorly; ventral area dark, with a narrow curved white band on each side. Both rows of eyes slightly recurved; central quadrangle longer than broad, very slightly narrower behind, eyes subequal, posteriors one diameter, anteriors slightly more than a diameter, apart; laterals well separate, one diameter apart. Legs without stout spines, but with fine bristles in their place. Femora with a row of fine bristles on each side beneath; tibiæ and protarsi with a double row of bristles beneath, those on the protarsi being stouter; patellæ with a fine apical bristle. Mandibles with three teeth on the lower margin. Sternum as broad as long. Abdomen somewhat prolonged beyond the spinners above; the dorsal muscular scars very conspicuous. For the vulva, see Plate.

*Hab.* MEXICO, Teapa (*H. H. Smith*).

### 29. **Aranea ocellata.**

*Epeira ocellata,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 29, t. 6. figg. 17, 17 *a* (♀)[1].

Type, ♀ (immature), in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* GUATEMALA, Cahabon (*Sarg*[1]).

### 30. **Aranea consequa.**

*Epeira consequa,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. pp. x, 36 (♀)[1].
*Epeira destricta,* O. P.-Cambr. loc. cit. t. 14. figg. 14, 14 *a, b* (♀, nec ♂)[2].

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

*Hab.* MEXICO, Ciudad in Durango (*Forrer*[1]); PANAMA, Bugaba (*Champion*[1]).

The types of this species have been mislaid.

### 31. **Aranea conica.**

*Alpaida conica*, O. P.-Cambr. Biol. Centr. Amer., Arachn. Aran. i. p. 53, t. 4. figg. 3, 3 *a–e* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 281, t. 14. figg. 207, 207 *a*, *b* (♀)[2].

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Guatemala[2]; Panama, Bugaba (*Champion*[1]).

### 32. **Aranea sallei.**

*Epeira salei* (sic), Keyserl. Sitzungsb. nat. Ges. Isis, Dresden, 1863, p. 93, t. 4. figg. 10, 11 (♀)[1]; Spinn. Amer., Epeiridæ, p. 196, t. 9. figg. 145, 145 *a* (♀)[2].

Type, ♀, in Mus. Brit. Total length 8·5 millim.

*Hab.* Mexico, Oaxaca (*Sallé*[1 2]).

### 33. **Aranea rivalis.**

*Epeira rivalis*, Keyserl. Spinn. Amer., Epeiridæ, p. 103, t. 5. figg. 76, 76 *a* (♀)[1].

Type, ♀, in coll. Marx. Total length 12·2 millim.

*Hab.* Guatemala[1].

### 34. **Aranea nicaraguensis.**

*Epeira nicaraguensis*, Keyserl. Verh. zool.-bot. Ges. Wien, xxxiv. p. 532, t. 13. fig. 31 (♀) (1884)[1]; Spinn. Amer., Epeiridæ, p. 214, t. 10. figg. 159, 159 *a* (♀)[2].

Type, ♀, in Mus. Cambridge, U.S.A. Total length 17 millim.

*Hab.* Nicaragua[1 2].

### 35. **Aranea zilloides.**

*Epeira zilloides*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 255, t. 15. fig. 2 (♂ ♀)[1].

Type ♂, gynetype ♀, in coll. Calif. Acad. Sciences. Total length, ♂ 4, ♀ 7·5 millim.

*Hab.* Mexico, Tepic[1].

### 36. **Aranea fasciolata.** (Tab. LI. figg. 5, 5 *a*, ♂.)

*Epeiroides fasciolata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 15, t. 8. figg. 5, 5 *a–e* (♂)[1].

[Nec Keyserl. Spinn. Amer., Epeiridæ, p. 309, t. 16. figg. 228, 228 *a–c* (♂).]

Type, ♂, in coll. Godman & Salvin. Total length 2 millim.

*Hab.* Panama, Bugaba (*Champion*[1]).

This species probably belongs to the group Theridiosommatinæ. The spider figured and described under this name by Keyserling, which is not in the British Museum, was perhaps incorrectly identified, as no long bristles on the first pair of legs are represented on his plate.

The following genera I am unable at present to place satisfactorily in their natural relationship to the other Araneinæ represented in the collection.

## CAREPALXIS.

*Carepalxis,* L. Koch, Arachn. Austral. p. 123 (1871); O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 48 (part.); E. Simon, Hist. Nat. Araign. édit. 2, i. p. 830.

Type *C. montifera,* L. Koch. Port Mackay, Australia.

Simon distinguishes this genus from *Scoloderus* by the straightness of the anterior row of eyes, but I cannot find any difference in this respect in the species which, if we take into consideration the characters furnished by the form of the cephalic hump, must be severally referred to these two genera. The plain or bilobate form of the cephalic hump will at present serve to separate them. The two examples referred to this genus in Vol. I. of this subject are immature females, and they may or may not represent different species. Both have the central posterior eyes wider apart and larger than the anteriors.

### 1. Carepalxis gibbosa.

*Carepalxis gibbosa,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 48, t. 4. figg. 10, 10 *a, b* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 54, t. 2. figg. 43, 43 *a, b* (♀)[2].

Type, ♀ (immature), in coll. Godman & Salvin. Total length 6 millim.

*Hab.* Guatemala[2]; Panama, Bugaba (*Champion*[1]).

### 2. Carepalxis rotunda.

*Carepalxis rotunda,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 224, t. 27. figg. 7, 7 *a–d* (♀)[1].

Type, ♀ (immature), in coll. Godman & Salvin. Total length 5·25 millim.

*Hab.* Mexico, Atoyac in Vera Cruz (*H. H. Smith*[1]).

## SCOLODERUS.

*Hypophthalma,* Taczanowski, Horæ Soc. Ent. Ross. xv. p. 129 (1879) (nomen præocc.).

*Scoloderus,* E. Simon, Hist. Nat. Araign. édit. 2, i. p. 829 (1887); O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 282; McCook, Amer. Spid. iii. p. 207.

Type *S. cordatus* (Tacz.). South America.

*Females.*

*a.* Abdomen longer than broad.

*a*[1]. Abdomen with single shoulder-tubercles.

*a*[2]. Ventral area of abdomen unicolorous. Scapus of vulva more globular at its apex, abruptly constricted basally. Cephalic region orange-red-brown . . . . . *americanus,* O. P.-Cambr.

$b^2$. Ventral area of abdomen with a central longitudinal black bar. Scapus of vulva broad, transverse, semicircular, not constricted basally. Cephalic region black . . . . . *nigriceps*, O. P.-Cambr.

$b^1$. Abdomen with double shoulder-tubercles . . . . . *tuberculiferus*, O. P.-Cambr.

*b*. Abdomen more globular, not longer than broad . . . . . *gibber*, O. P.-Cambr.

### 1. **Scoloderus americanus.** (Tab. LI. figg. 6, 6 *a*, *b*, ♀.)

*Carepalxis americana*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 49, t. 4. figg. 8, 8 *a–c* (♀) (nec ♂)[1].

Type, ♀, in coll. Godman & Salvin. Total length 4·75 millim.

*Hab.* Panama, Bugaba (*Champion*).

The cephalic lobe is orange-red-brown, not truncate apically, while the abdomen has no central black line beneath. For vulva, see Plate.

### 2. **Scoloderus nigriceps.** (Tab. LI. fig. 7, ♀.)

*Carepalxis nigriceps*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 158, t. 19. figg. 9, 9 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 2·75 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

This species is very closely allied to *S. americanus*, but the cephalic lobe is more truncate at the apex and black (instead of orange-red), and the ventral area of the abdomen has a central longitudinal black band. The vulva, too, differs considerably in form, see Plate.

### 3. **Scoloderus tuberculiferus.**

*Carepalxis tuberculifera*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 48, t. 4. figg. 9, 9 *a*, *b* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 50, t. 2. figg. 40, 40 *a–c* (♀)[2]; McCook, Amer. Spid. iii. p. 207, t. 13. figg. 6, 6 *a–d* (♀)[3].

Type, ♀, in coll. Godman & Salvin. Total length 3·25 millim.

*Hab.* North America, Florida[2 3].—Guatemala[2]; Panama, Bugaba (*Champion*[1]).

The type-example is not fully mature, and it is possibly identical with *S. americanus*, though the shoulder-tubercles may furnish a good distinctive character.

### 4. **Scoloderus gibber.** (Tab. LI. figg. 8, 8 *a*, ♀.)

*Scoloderus gibber*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 282, t. 36. figg. 4, 4 *a–d* (♀)[1].

*Carepalxis americana*, O. P.-Cambr. loc. cit. p. 49, t. 4. figg. 7, 7 *a–c* (♂) (nec ♀)[2]; Keyserl. Spinn. Amer., Epeiridæ, p. 51, t. 2. figg. 41, 41 *a–d* (♀), 41 *e* (♂)[3].

Type ♀, deuterotype ♂, in coll. Godman & Salvin. Total length, ♀, 4·75 millim.

*Hab.* Mexico, Atoyac (*H. H. Smith*[1]: ♀); Guatemala[3]; Panama, Bugaba (*Champion*[1 3]: ♂).

## KAIRA.

*Kaira*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 56 (1889); McCook, Amer. Spid. iii. p. 202.

*Caira*, E. Simon, Hist. Nat. Araign. édit. 2, i. p. 894.

Type of *Kaira*, O. P.-Cambr., and *Caira*, E. Simon, *K. gibberosa*, O. P.-Cambr. Panama.

Tibiæ and protarsi i., ii., iii. and the inner side of tarsus i. densely clothed on the inner anterior side with numerous longer and shorter curved spines, the posterior central row slightly narrower than the anterior.

*Females.*

*a*. Vulval plate very small, transverse-oval, with or without a chitinous hook in the middle above. Tibiæ i. and ii. not compressed basally above, nor sinuous when seen in profile. Sternum at least twice longer than broad.

*a*¹. Abdomen produced into a single high truncate cone, studded with tubercles on the sides and base. Vulval plate transverse-oval, without a central chitinous hook. Protarsi i. and ii. with a series of four or five much longer, widely spaced spines . . *gibberosa*, O. P.-Cambr.

*b*¹. Abdomen produced into a truncate cone (seen in profile), but seen from above the apex is deeply bifid, forming a pair of cones, each cone studded with tubercles at their apex only. Vulval plate bearing a small, sharp, recurved, chitinous hook in the middle. Protarsi i. and ii. without a series of longer spines . . . . . *altiventer*, O. P.-Cambr.

*b*. Vulval plate much larger, with a conspicuous scapus and enlarged base. Tibiæ i. and ii. compressed above basally, sinuous seen in profile. Sternum scarcely longer than broad . . . . . *dromedaria*, O. P.-Cambr.

### 1. **Kaira gibberosa.** (Tab. LI. figg. 9, 9 *a*, ♀.)

*Kaira gibberosa*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 57, t. 3. figg. 12, 12 *a–e* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 5·5 millim.

*Hab.* Panama, Veragua (*Boucard*[1]).

### 2. **Kaira altiventer.** (Tab. LI. figg. 10, 10 *a*, ♀.)

*Kaira altiventer*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 56, t. 3. figg. 13, 13 *a–d* (♀)[1].

Type, ♀ (immature), in coll. Godman & Salvin. Total length 11·25 millim.

*Hab.* Panama, Veragua (*Boucard*[1]).

### 3. **Kaira dromedaria.** (Tab. LI. figg. 11, 11 *a*, ♀.)

*Kaira dromedaria*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 115, t. 14. figg. 9, 9 *a–d* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 11·25 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[1]).

## GLYPTOGONA.

*Glyptogona*, E. Simon, Ann. Soc. Ent. Fr. 1884, p. 326; Hist. Nat. Araign. édit. 2, i. p. 867.

Type *G. sextuberculata* (Keyserl.). Dalmatia.

A single male from Panama can obviously be referred to this genus. The following are its chief characters:—Central quadrangle of eyes wider in front than behind, the anterior eyes being much larger than the posterior; patella of the palpus without spine; coxa i. with the hook and femur ii. the groove present in the vast majority of the Araneinæ; tibia ii. not specialized, nor set with specialized spines; abdomen tuberculate, furnished with tuberculate lobes; femora i.–iv. also tuberculate in front or beneath.

### 1. Glyptogona decem-tuberculata.

*Cyrtarachne decem-tuberculata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 59, t. 4. figg. 4, 4 *a–c* (♂)[1].

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

*Hab.* Panama, Bugaba (*Champion*[1]).

## HENTZIA.

*Hentzia*, McCook, Amer. Spiders, iii. p. 244 (1893).

Type *H. basilica*, McCook. North America.

♂. No hook on coxa i. and no groove on femur ii. Coxa and femur of pedipalp without a coniform spur and chitinous ridge. Tibia ii. not incrassate, nor with specialized spines. Patella of pedipalp with a single apical spine. Palpus with an apical tarsal hook.

♂ ♀. Posterior central eyes one diameter apart, slightly larger than the anterior centrals. Central quadrangle slightly wider behind, longer than broad, anterior eyes half a diameter apart. Posterior row slightly procurved; laterals one-eighth of a diameter apart, distant from the posterior centrals by less than the diameter of one of the latter. Boss at the base of the mandible very slight. Legs clothed with numerous long spines; femora i. and ii. presenting, besides other spines, two rows of long spines beneath. Protarsus and tarsus i. longer than tibia and patella i. Sternum not longer than broad. Upper and lower margins of the fang-groove with three teeth. Colulus present. The palpus in the male exhibits the hook at the base of the tarsal sheath, while the embolus of the bulb in the male and the form of the vulva in the female are quite characteristic (see Plate).

The spider on which this genus was based, as noted by McCook, properly belongs near *Leucauge* (=*Argyroepeira*) in the group Metinæ. Simon (Hist. Nat. Araign. édit. 2, i. p. 775) relegates *Hentzia* to the position of a synonym of *Cyrtophora* (type *C. citricola*, Forskål). *H. basilica* appears to have scarcely a single character in common with Forskål's species.

### 1. Hentzia trivittata. (Tab. LI. figg. 12, 12 *a*, ♂; 13, 13 *a*, ♀.)

*Argiope trivittata*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 51, t. 4. figg. 5, 5 *a–d* (♂], 6, 6 *a–d* (♀)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 8 millim.

*Hab.* Guatemala, Dolores, Sacrixpur, between Dolores and Chapallal, San José River, Chiquimula (*Sarg*[1]).

This species must be very closely allied to *H. basilica*, McCook.

## Subfam. *GASTERACANTHINÆ.*

The Central-American representatives of this subfamily belong to three genera, *Gasteracantha*, *Micrathena*, and *Tricantha*. These are distinguished from the other Argyopidæ by having the spinners placed at the apex of a tubular chitinous sheath.

The genera at present recognized can be separated by the following characters:—

### Genera.

A. Carapace subquadrate; cephalic area raised, forming a transverse ridge, usually notched in the middle. Tarsus iv. and apical fourth of protarsus set beneath with numerous short, stout, semierect, basally compressed, simple spines . . . . . Gasteracantha, Sund.

B. Carapace cordiform or oval-elongate; cephalic area not raised to form a transverse ridge. Tarsus iv. and apical fourth of protarsus set with numerous recumbent, serrate bristles, but without a series of semierect spines.

*a*. Carapace longer than broad, oval, moderately narrowed in front. Eye-groups more separated; posterior lateral eyes three to four diameters distant from the posterior centrals. Abdomen triangular, broader behind . . . . . Micrathena, Sund.

*b*. Carapace as broad as, or broader than, long, cordiform, much narrowed in front. Eye-groups more closely situated; posterior lateral eyes not more than one and a half diameters distant from the posterior centrals. Abdomen triangular, broader in front . Tricantha, Simon.

## GASTERACANTHA.

*Gasteracantha*, Sundevall, Dissert. Consp. Arachn. p. 14 (1833).

Type *G. lata* (Walck.). Guadeloupe.

Carapace scarcely longer than broad; caput raised, forming a transverse ridge; thoracic area excavate. Fovea procurved. Mandibles with three teeth on the upper, and four on the lower, margin of the fang-groove. Tarsus iv. with 10–15 or more semierect, short, stout spines beneath. Abdomen broad, transverse, and covered with a horny integument, having four to six spines. Spinners contained at the end of a chitinous tube.

The species known to me may be separated by the characters given in the Table, but it is doubtful if they will prove to be distinct when both sexes of each are available for examination.

*a*. Abdomen (including spines) about one-fourth broader than long; spines, especially the posterior, more robust, bright orange . . . . . *cancriformis*, Linn.?

*b*. Abdomen about one-half broader than long; spines more slender, aculeate, black . . . . . *kochi*, Butl.

### 1. **Gasteracantha cancriformis.** (Tab. LI. fig. 14, ♀.)

? *Aranea cancriformis*, Linn. Syst. Nat. ii. p. 1037 (♀)[1].
*Plectana cancriformis*, Walck. Ins. Apt. ii. p. 151 (♀)[2].
*Gasteracantha cancriformis*, McCook, Amer. Spid. iii. p. 211, t. 114. figg. 9, 9 *a* (♀)[3]; F. P.-Cambr. Ann. & Mag. Nat. Hist. (7) vii. p. 329, t. 7. fig. 11 (♀)[4].
*Aranea hexacantha*, Fabr. Mant. Ins. p. 344 (♀)[5].
*Gasteracantha hexacantha*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 249[6].
*Gasteracantha rubiginosa*, C. L. Koch, Die Arachn. xi. p. 55, fig. 878[7].

*Hab.* North America, Southern States[3].—Mexico, Tepic, Guaymas (*fide Banks*[6]); Costa Rica (*Rogers*).—Antilles, Jamaica[1 5], Haiti[7]; Bahama Is.[4].

### 2. **Gasteracantha kochi.** (Tab. LI. figg. 15, 15 *a*, *b*, ♀.)

*Gasteracantha kochii*, Butl. Trans. Ent. Soc. Lond. 1873, p. 169 (♀)[1]; F. P.-Cambr. Ann. & Mag. Nat. Hist. (7) vii. p. 331, t. 7. fig. 10 (♀)[2].
*Gasteracantha hexacantha*, C. L. Koch, Die Arachn. iv. p. 31, t. 117. fig. 268 (♀)[3].
*Gasteracantha cancriformis*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 249[4].

Type, ♀, in Mus. Brit. Total breadth 18 millim.

*Hab.* Mexico, Misantla (*F. D. G.*), Rio Papagaio, Amula, Vera Cruz, Jalapa, Atoyac, Orizaba[4], Teapa (*H. H. Smith*); Guatemala, Guatemala city (*Stoll*), Chicoyoito, Petet, Coban, Tamahu, Santa Ana, Petexbatum, Patal, Costa Cuca, Cuajiniquilapa (*Sarg*); Costa Rica, San José (*Rogers*).—South America[3], Pará[1], Santarem (*F. O. P.-C.*).

The following species is unknown to me :—

### 3. **Gasteracantha elliptica.**

*Gasteracantha elliptica*, Getaz, An. Inst. Costa Rica, iv. p. 105 (♀) (1893)[1].

Type, ♀, in Mus. Nac. Costa Rica.

*Hab.* Costa Rica, San José (*Biolley*[1]).

This spider is said to be common in the neighbourhood of San José.

## MICRATHENA.

*Micrathena**, Sundevall, Dissert. Consp. Arachn. p. 14 (? April, 1833).
*Acrosoma*, Perty, Del. Anim. Art. Bras. p. 193 (Dec. 1833).
*Keyserlingia*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 58 (1890).

Type of *Micrathena*, *M. clypeata* (Walck.); of *Acrosoma*, *A. swainsonii*, Perty, Brazil.

Carapace always longer than broad; thoracic area convex, raised, with a small central rounded fovea, and other lateral foveæ. Fang-groove of mandibles with four teeth above and three below. Tarsus iv. without

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* According to Mr. T. Davies Sherborn's MSS. notes on his 'Index Animalium,' Sundevall's paper was "read" in April 1833, while the date of the publication of the closing papers of Perty's work is Dec. 1833 (*vide* the foot of last page).

short, semierect spines beneath. Abdomen elongate, not transverse, covered with a horny integument and armed with from 2–10 or more sharp spines or protuberances. Spinners contained at the end of a horny tube.

Males differing very much in general appearance from the females; when immature the two sexes are almost alike, but in the adult male the spines become atrophied and then it is, in most cases, impossible to pair them unless they have been taken together.

The species known to me may be recognized by the following characters:—

*Males.*

A. Coxa i. without apical hook beneath; femur ii. without groove above at the base.
  i. Integument of carapace and abdomen finely granulose or coarsely punctured throughout.
    *a*. Abdomen broader in proportion, terminating in two spiniform cusps. Integument covered with minute granules . *gracilis*, Walck.
    *b*. Abdomen narrower in proportion, terminating in four spiniform cusps. Integument covered with coarse rounded punctures . . . . . *longicauda*, O. P.-Cambr.
  ii. Integument of carapace and abdomen neither granulose nor punctured.
    $a^1$. Abdomen broader behind.
      $a^2$. Legs entirely devoid of spines.
        $a^3$. Tarsal hook with one branch only, set at a right angle to the shaft . . . . . *brevipes*, O. P.-Cambr.
        $b^3$. Tarsal hook with two branches.
          $a^4$. Branches of tarsal hook subequal, the hook itself T-shaped . . . . . *sagittata*, Walck.
          $b^4$. Branches of tarsal hook very unequal; upper branch enormously prolonged, slender, and sinuous, horn-like . . . . . *cornigera*, O. P.-Cambr.
      $b^2$. Legs, at least femur i. and tibia ii., furnished with clasping-spines . . . . . *vitiosa*, O. P.-Cambr.
    $b^1$. Abdomen not broader behind, parallel-sided . . . . . *granulata*, sp. n.
B. Coxa i. with an apical hook beneath; femur ii. with a groove at the base above.
    $a^5$. Femora i. and ii. with a longitudinal series of short spines beneath.
      $a^6$. Tibiæ i. and ii. with a double series of short spines beneath . *parallela*, O. P.-Cambr.
      $b^6$. Tibiæ i. and ii. with some long spines, but no double series of short spines, beneath . . . . . *uncata*, sp. n.
    $b^5$. Femora i. and ii. without a longitudinal series of short spines beneath . . . . . *patruelis*, C. L. Koch.

*Females.*

A. Vulval scapus having a deep concavity on each side at the apex.

*a*. Abdomen with six spines.

*a*[1]. Spines much larger in proportion, especially the posterior pair . . . . . *striata*, sp. n.

*b*[1]. Spines much smaller, minute, and recurved . . . . . *spinulata*, sp. n.

*b*. Abdomen with ten to twenty or more spine-bearing tubercles.

*a*[2]. Abdomen with ten sharp spines set on large tubercles. No tubercle immediately above the spinning-tube . . . . . *gracilis*, Walck.

*b*[2]. Abdomen with twenty or more tubercles, set with short spines. A large tubercle immediately above the spinning-tube behind . . . . . *mammillata*, Butl.

B. Vulval scapus without a concavity on each side at the apex.

i. Abdomen with a pair of anterior marginal spines directed forwards over the carapace.

* Posterior spines on the abdomen forming a compressed lobe, with from three to four spurs.

*a*[3]. Posterior lobes of the abdomen trifid, with three spurs; the lateral margins bearing three cusps . . . . . *triserrata*, sp. n.

*b*[3]. Posterior lobes of the abdomen quadrifid, with four spurs; the lateral margins bearing two cusps . . . . . *quadriserrata*, sp. n.

** Posterior spines on the abdomen not forming compressed lobes.

*a*[4]. Posterior spurs of the abdomen themselves bifid or trifid.

*a*[5]. Posterior spurs themselves bifid, with often a third minute spine remote from the apex, behind and beneath.

*a*[6]. Four lateral marginal spines on the abdomen; branches of bifid spur equal in length . . . . . *serrata*, sp. n.

*b*[6]. One lateral marginal spine only on the abdomen; lower branch of bifid spur smaller than the other . *inæqualis*, sp. n.

*b*[5]. Posterior spurs of the abdomen themselves trifid or tridentate.

*a*[7]. Lower spine of the posterior spur very small and remote from the other pair . . . . . *subspinosa*, sp. n.

*b*[7]. Lower spine of the posterior spur situated close to the base of the middle spine, often strongly deflected outwards . . . . . 12-*spinosa*, O. P.-Cambr.

*b*[4]. Posterior spurs of the abdomen simple, neither bifid nor trifid.

*a*[8]. Abdomen with ten spines, a pair of anterior marginal, anterior dorsal, median dorsal, posterior dorsal, and postero-inferior dorsal spines . . . . . *schreibersi*, Perty.

$b^{8}$. Abdomen with six or eight spines.
$a^{9}$. Abdomen with six spines, sometimes also with a pair of very minute spinules at the base of the posterior dorsal spine, behind. Sternum not markedly convex. *sagittata,* Walck.
$b^{9}$. Abdomen with eight spines. Sternum very convex . *gladiola,* Walck.
ii. Abdomen without a pair of anterior marginal spines.
$a^{10}$. Abdomen not itself apically bifid.
$a^{11}$. Apex of abdomen with a single pair of longer or shorter spines, a single stout one at each angle.
$a^{12}$. Two abdominal spines only . . . . . *bimucronata,* O. P.-Cambr.
$b^{12}$. Four to six abdominal spines.
$a^{13}$. Four abdominal spines only . . . . . *catenulata,* sp. n.
$b^{13}$. Six abdominal spines . . . . . *obtusospina,* Keyserl.
$b^{11}$. Apex of abdomen bearing two pairs of comparatively very short spines.
$a^{14}$. Upper posterior spine always larger than the lower . . *patruelis,* C. L. Koch.
$b^{14}$. Upper posterior spine not larger than the lower . . . *mitrata,* Hentz.
$b^{10}$. Abdomen itself apically bifid . . . . . *furcula,* O. P.-Cambr.

Note.—The males and females of *M. fericula* are not fully mature, and their characters do not therefore appear in the Table. *M. mitrata*, Hentz (♂), is not known to me.

## 1. **Micrathena gracilis.** (Tab. L. figg. 3, 3 *a–d*, ♀; Tab. LI. figg. 16, 16 *a*, ♂.)

*Epeira gracilis,* Walck. Tabl. des Aran. p. 65 (♀)[1].
*Plectana gracilis,* Walck. Ins. Apt. ii. p. 193 (♀)[2]; Abbot, Georgian Spiders, nos. 47, 48 (♀)[3].
*Acrosoma gracile,* McCook, Amer. Spid. iii. p. 212, t. 21. figg. 1–3 (♀), 4, 4 *a–c* (♂)[4].
*Acrosoma matronale,* C. L. Koch, Die Arachn. xi. p. 68, t. 176. fig. 887 (♀)[5].
*Micrathena matronalis,* E. Simon, Hist. Nat. Araign. édit. 2, i. p. 852, fig. 102 (♀)[6].
*Epeira rugosa,* Hentz, Journ. Bost. Soc. Nat. Hist. vi. p. 21, t. 3. figg. 10, 10 *a* (♀), 10 *b* (♂)[7]; Spid. U.S. (ed. Burgess) p. 124, t. 14. figg. 10, 10 *a* (♀), 10 *b* (♂)[8].
*Acrosoma rugosa,* Emerton, Trans. Conn. Acad. Sci. vi. p. 326, t. 38. fig. 10 (♀)[9]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 250[10].

Type, ♀, = fig. 47, Abbot's Georg. Spiders, North America. Total length 10 millim.

♀. Carapace deeply indented between the cephalic and thoracic areas. Central quadrangle of eyes slightly wider behind, central posterior eyes less than one diameter apart, central anteriors about half a diameter apart, laterals almost in contact. Clypeus equal to two diameters of the anterior central eyes. Femora of legs densely granulose with setigerous tubercles; patellæ feebly dilate behind. Sternum with a slight convex boss opposite the coxæ of legs i., ii., iii., produced posteriorly to form a conical convexity, which does not lie *between* the coxæ iv., but terminates in front of them, although the sternal chitin is continued on to the pedicle. Fang-groove with four teeth above, three below.

Abdomen broad oval-triangular (seen from above), very deep, owing to the developed tube containing the spinners (seen in profile); the integument is closely punctured throughout with minute pits; the dorsal margin has five subequal, similar, stout spines, which are basally broad on each side, the third having a conspicuous basal dilatation behind; the vulval scapus is narrow and elongate, having a large apical cavity on each side.

♂. Carapace elongate, narrowed behind, cephalic region globular, margins punctured, central fovea and three lateral foveæ punctiform.

Legs without spines, except that femora i. and ii. have three or four fine spines beneath, set on granules; coxa i. without a hook.

Abdomen elongate, triangular when viewed in profile, the spinning-tube being conspicuous, finely granulose throughout, each granule bearing a fine hair; narrowed anteriorly, dilate behind the middle, having a prominence on each side in the posterior third, slightly dilate and finally narrowed, each posterior angle bearing a very short sharp cusp.

The palpal bulb bears on the outer side a large falciform embolus, and the form of the tarsal hook is characteristic.

*Hab.* North America [1–4 7 8 9].—Mexico, Tepic (*fide Banks* [10]), Chilpancingo, Rincon, Amula, Orizaba [10] (*H. H. Smith*); Guatemala, Guatemala city (*Stoll*), Magdalena near Antigua, Cahabon, Santa Ana, Motagua (*Sarg*); Costa Rica (*Rogers*).—South America [5].

Of this species Sarg remarks in his letters:—"Colour bright yellow, with overlaid reddish-orange, leaving only a few markings of the original paler yellow; the indented spots are black; below, the colour is more of a yellow-ochre."

Although the examples of this species (*M. rugosa*, Hentz) from the United States are very much smaller than those (*M. matronalis*, C. L. Koch) from Central and South America, I can find no real difference on which one could separate them.

We must accept McCook's identification of *M. gracilis* (Walck.) with *M. rugosa* (Hentz), and, judging from Abbot's figures, there is no reason to doubt that his conclusion is correct. I have not, however, been able to compare well-authenticated males of these two forms.

## 2. **Micrathena mammillata.** (Tab. L. figg. 4, 4 *a–c*, ♀.)

*Acrosoma mammillatum*, Butl. P. Z. S. 1873, p. 427 [1].

Type, ♀, in Mus. Brit. Total length, ♀, 10 millim.

In general characters this species is very similar to *M. gracilis*, the integuments of the abdomen being, as in the latter, closely and finely punctured throughout. The thoracic fovea is, however, not so deep, and the cusps on the abdomen are different in number and character.

There are a pair of short anterior marginal cusps projecting outwards on each side of the base of the carapace; these are followed along the sides by a group of three, and another of two, short, bluntly rounded cusps, the latter group situated about the middle. Dorsally there is a pair of anterior median, basally dilate, sharp spines directed straight forwards, followed on each side by a pair of closely adjacent, rather shorter cusps of the same character directed obliquely forwards, while posteriorly there is on each side a group of four cusps—the first quite small, a mere tubercle, the second, the longest, enlarged basally behind, the third, smaller, lying in the same plane, the fourth, still smaller, lying behind and below the third. Midway between the last pair of cusps and the spinners is a small circular convex boss formed by four muscle-scars, and immediately above the anal tubercle lies a blunt cusp, its apex directed downwards. The exact character of the abdominal cusps varies, however, in different examples. The vulva is very similar to that of *M. gracilis*, consisting of a compressed scapus, excavate on each side, dilate basally, the two orifices being wide apart below the base of the scapus; they are much nearer to each other in the last-mentioned species, but the exact form of these parts varies much in individual examples.

*Hab.* Mexico, Teapa (*H. H. Smith*); Guatemala, Chamiquin, Cubilguitz, Cunen, Tikal, Menché, Rio Santa Isabel (*Sarg*); Panama, Bugaba (*Champion*).—South America, Santarem (*F. O. P.-C.*), Orinoco [1].

Mr. Sarg mentions these curious spiders as common in parts of Guatemala on juniper bushes, but does not give a detailed description of their coloration.

### 3. **Micrathena longicauda.** (Tab. L. figg. 5, 5 *a*, *b*, ♂.)

*Acrosoma longicauda,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 61, t. 8. figg. 9, 9 *a–d* (♂)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 15, t. 1. figg. 11, 11 *a* (♂)[2].

Type, ♂, in coll. Godman & Salvin. Total length 5·5 millim.

Carapace oval-elongate, coarsely and closely punctured, as is also the sternum. Abdomen very narrow, elongate, not laterally much dilate, slightly trilobate in its apical fourth, the apex itself (seen from behind) rounded-quadrate with four spines, the upper set wider apart than the lower; the whole integument—dorsal, lateral, and ventral—coarsely and closely pitted, each pit bearing a fine hair. Legs without spines, save a few fine ones set on granules beneath femora i. and ii. Coxa i. without hook.

For the tarsal hook of the palpus, see Plate.

*Hab.* MEXICO, Teapa (*H. H. Smith*); GUATEMALA[2]; PANAMA, Bugaba (*Champion*[1]).

It is quite possible that *M. longicauda* will prove to be the male of *M. mammillata*, Butl., but since there are other species, such as *M. horrida*, Tacz., which would have quite as good claims from the point of view of probability, one cannot be sure on the matter.

### 4. **Micrathena striata,** sp. n. (Tab. L. figg. 6, 6 *a–d*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

General characters similar to those of *M. gladiola*, except that there is a transverse thoracic depression on the carapace, and the sternum is not exceptionally convex. Abdomen without anterior marginal spines or lateral marginal cusps, but with a pair of sharp divergent anterior dorsal spines, obliquely directed forwards, and a pair of stout divergent spines, of varying length and character, directed obliquely upwards and backwards, having close to their base behind a small conical cusp.

The vulval scapus has a cavity on each side apically, and it closely resembles that of *M. mammillata*, but the character of the abdomen in this latter species is totally different.

*Colour*: dorsal area of abdomen entirely yellow, with two transverse lateral black lines in front of the anterior dorsal spines on each side, and four lines of a similar character between these and the posterior spines. The lateral area is characterized in most examples by two conspicuous, transverse, parallel rows of yellow spots originating from between each pair of the posterior black lines and continuing down the sides to the base of the spinning-tube. In many examples there are also a few marginal yellow spots round the spiracular orifices, and an indistinct row of the same running down behind from the base of the small posterior cusps.

*Hab.* GUATEMALA, Sakiyác, Chichochoc (*Sarg*).

### 5. **Micrathena spinulata,** sp. n. (Tab. L. figg. 7, 7 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

Carapace very similar to that of *M. striata*. Abdomen elongate-oval, truncate at both ends; the integument punctured throughout, more closely so beneath; bearing a pair of minute, but very distinct, sharp, recurved spinules in the anterior longitudinal third, occupying the median transverse third; a pair of minute spinules, having an enlarged conical base, occupy the posterior angles, while another pair, equal to the former in size and character, lie below and behind, occupying a slightly wider space and extending slightly further distally than the others.

The vulva is of similar type to that of *M. gracilis*, see Plate. Colour variable: dorsal area yellow, with a dark brown anterior triangular patch, centrally paler, followed by a similar dark patch, with a very distinct small, circular, yellow, central spot; a dull dusky central band runs from this point to meet a dark blotch lying between the posterior spines. Lateral and ventral areas dull brown.

*Hab.* Mexico, Omilteme, Amula (*H. H. Smith*).

### 6. **Micrathena brevipes.** (Tab. L. figg. 8, 8 *a*, ♂.)

*Acrosoma brevipes*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 62, t. 8. figg. 10, 10 *a–d* (♂)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 12, t. 1. figg. 9, 9 *a*, *b* (♂)[2].

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

Carapace elongate-oval, with central punctiform fovea and very slight lateral foveæ. Eye-groups more closely situated than in the *M. parallela*-group. Legs entirely devoid of spines, clothed with fine hairs only. Coxa i. without hook, and femur ii. without groove; coxæ iv. closely situate; leg iii. much smaller than the others and isolated, the coxæ iii. being remote from those of ii. and iv. Abdomen narrower in front, dilate behind.

Palpal bulb without a serrated lamella, the tibia having a large bifid spur beneath, see Plate.

*Hab.* Mexico, Teapa (*H. H. Smith*); Guatemala[2]; Panama, Bugaba (*Champion*[1]).

### 7. **Micrathena obtusospina.** (Tab. L. figg. 9, 9 *a–i*, ♀.)

*Acrosoma obtusospina*, Keyserl. Sitzungsber. nat. Ges. Isis, Dresden, 1863, p. 76, t. 2. fig. 9 (♀)[1]; Spinn. Amer., Epeiridæ, p. 23, t. 1. fig. 20 (♀)[2].

*Acrosoma armatum*, McCook, Amer. Spid. iii. t. 21. figg. 5, 5 *a* (♀)[3].

Type, ♀, in Mus. Brit. Total length, ♀, 14–17 millim. (including posterior spines).

♀. Carapace deeply, broadly, and transversely excavate between the cephalic and thoracic areas. Central posterior eyes two diameters, central anteriors one diameter, apart; laterals distinctly separate, about three-fourths of a diameter apart. Sternum more distinctly transversely trilobate than in the other allied species, having a convex boss opposite the coxæ of legs i.–iii. on each side, produced posteriorly between coxæ iv. into a stout, conical, blunt point, its apex lying between the coxæ. Femora of legs studded with numerous granules or small tubercles. Patellæ only very slightly dilate behind. Fang-groove with four teeth above, three below.

The vulval scapus has no transverse cavity in front, but is produced into a bluntly rounded tongue of variable form, sometimes slightly dilate apically; seen from behind, there lies beneath this scapus a transverse oval cavity, into which the lower portion of the scapus descends in the form of an oval plate; on the posterior margin of the cavity lies a central convex boss, with a small carinate sclerite on each side. The exact form of the vulva is, however, very variable in different examples.

The abdomen is triangular, with a pair of long, sharp, divergent spines situated less than the length of one of them apart, on the anterior third of the median dorsal area, usually directed obliquely forwards. The posterior margin is occupied by two long, stout, sharp-pointed spines, one at each angle, divergent, directed straight backwards or slightly obliquely upwards, very variable in form, being sometimes much longer, and often much shorter, than the dorsal area, in the former case gradually attenuated to a sharp point, in the latter abruptly ending in a short point. Immediately in front of the base of these spines, on the dorsal side, lies a sharp cusp or spine of very variable length, erect or directed backwards. In immature examples a second minute cusp lies midway between these and the dorsal spines, while in those still less mature, which are black with white spots, the intermediate lateral spines are slender, sharp, and almost as long as the anterior and posterior spines. The chitinous tube is well-developed, but not so long as in *M. schreibersi*.

*Hab.* Mexico[2], Teapa (*H. H. Smith*); Guatemala, Chisec (*Sarg*); Costa Rica

(*Rogers*), Santa Clara (*Tristan*); Panama, Bugaba (*Champion*).—South America, Colombia [1], Brazil [1], Lower Amazons (*F. O. P.-C.*); Antilles, Puerto Rico [1].

This abundant and widely-spread species has long been known under the name *Acrosoma armatum*, C. L. Koch, a form which may or may not be identical with it. In any case, the specific name *armatum* is preoccupied by Olivier (sec. Simon, Hist. Nat. Araign. édit. 2, i. p. 852, fig. 911).

8. **Micrathena cornigera.** (Tab. L. figg. 10, 10 *a*, ♂.)

*Keyserlingia cornigera*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 58, t. 4. figg. 2, 2 *a–e* (♂) [1].

*Acrosoma calcaratum*, O. P.-Cambr. loc. cit. p. 62, t. 8. figg. 8, 8 *a–e* (♂) [2]; Keyserl. Spinn. Amer., Epeiridæ, p. 11, t. 1. figg. 8, 8 *a* (♂) [3].

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

*Hab.* Guatemala [3]; Panama, Bugaba (*Champion* [1 2]).

The type-specimen of *K. cornigera* is mature, but not fully chitinised and pigmented; it is identical with *A. calcaratum*.

9. **Micrathena vitiosa.** (Tab. L. figg. 11, 11 *a*, ♂.)

*Acrosoma vitiosum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 63, t. 8. figg. 14, 14 *a–f* (♂) [1]; Keyserl. Spinn. Amer., Epeiridæ, p. 10, t. 1. figg. 7, 7 *a* (♂) [2].

Type, ♂, in coll. Godman & Salvin. Total length 4·5 millim.

General characters as in *M. brevipes*, except that femora i. and ii. and tibia ii. are spined. Femora i. and ii. with several stout apical spines on each side. Tibia ii. with a series of five long spines beneath. Abdomen black, with the vestigia of three pairs of spines, enlarged apically, having a white transverse median spot.

Tarsus of palpal bulb developed into an immense concave, quadrate, closely and very finely granulose sclerite, which forms the "tarsal hook" or clasper, see Plate.

*Hab.* Guatemala [2]; Panama, Bugaba (*Champion* [1]).

10. **Micrathena granulata,** sp. n. (Tab. L. figg. 12, 12 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4 millim.

Carapace elongate-oval, with central and three lateral foveæ, and in general respects very similar to *M. parallela*.

Legs not spinous, except femur i., which is incrassate, armed apically on the anterior side with five or six long stout clasping spines. Tibiæ i. and ii. and patellæ i.–iv. also bear spines. Coxa i. without hook, and femur ii. without groove. Coxæ iv. closely situated, and leg iii. as in *M. brevipes*. Tarsal hook of sheath of the palpus characteristic, broad, oblong, concave, apically recurved, set with numerous minute teeth, its concave area also studded with minute dentiform granules.

Carapace dull orange, legs paler; abdomen dull yellow, anterior and posterior margins dusky, with a central dorsal and three lateral white spots.

*Hab.* Mexico, Teapa (*H. H. Smith*).

## 11. **Micrathena parallela.** (Tab. L. figg. 13, 13 *a*, *b*, ♂.)

*Acrosoma parallelum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 60, t. 8. figg. 15, 15 *a–d* (♂)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 16, t. 1. figg. 12, 12 *a* (♂)[2].

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.

Carapace brown-orange, broadly margined with black-brown, oval-elongate, with a central punctiform fovea and three lateral foveæ. Abdomen parallel-sided, elongate, compressed, truncate at each end, dull yellow-white, broadly margined along the anterior two-thirds with dull metallic blue-black; sides and ventral area closely punctured. Femora i. and ii. without anterior dorsal spines; tibiæ i. and ii. with a double series of short stout spines beneath. Coxa i. with a stout, curved, apical hook; femur ii. with a groove. Palpal bulb elongate, produced to a blunt dark point; embolus concealed; tarsal hook with its anterior margin finely serrate in the apical half, see Plate.

*Hab.* Guatemala[2]; Panama, Bugaba (*Champion*[1]).

## 12. **Micrathena uncata,** sp. n. (Tab. L. figg. 14, 14 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim.

General structure as in *M. parallela*. Tibiæ i. and ii. with several long spines beneath, but without the double row of short spines characteristic of the last-mentioned species. Femora i. and ii. with a more or less scattered series of long spines extending down its anterior dorsal side from near the base to the apex, and also a single series of ten or eleven short stout spines beneath.

Palpal bulb bluntly rounded apically. Embolus just visible, lying within the concave sheath-like conductor and almost beneath a stout, slightly curved, pointed, black uncus. Tarsal hook not serrate on its anterior margin.

*Hab.* Guatemala (*Sarg*).

## 13. **Micrathena patruelis.** (Tab. L. figg. 15, 15 *a*, *b*, ♂; 16, 16 *a–c*, ♀.)

*Acrosoma patruelis*, C. L. Koch, Die Arachn. vi. p. 130, fig. 524 (♀)[1].

*Acrosoma reduvianum*, E. Simon, Hist. Nat. Araign. édit. 2, ii. p. 854, fig. 914 (♀)[2].

Type, ♀, in Mus. Munich; deuterotype, ♂, in coll. Godman & Salvin. Total length, ♀ 5·5, ♂ 3 millim.

♂. Carapace dull orange-brown, the legs paler. Abdomen brown, apically dull black, with very distinct white cretaceous spots: anteriorly there is a horseshoe-shaped spot, followed by a long spot on each side, and a small central one, then a transverse elongate spot followed by a small central one, and on each side at the commencement of the black apical blotch there is another spot.

Femora i. and ii. with long dorsal spines, but without series of short spines beneath. Patellæ and tibiæ i. and ii. with some stout clasping-spines, patellæ with two on the inner side near the apex; tibiæ with numerous stout spines irregularly situated beneath. Coxa i. with a hook and femur ii. with a groove. Palpal bulb bluntly rounded at the apex. Conductor sinuous, apically produced into a thin concave battledore-like sclerite. Tarsal hook very similar to that of the allied species, not serrate on its inner margin.

♀. Carapace not very deeply grooved transversely behind the cephalic region; the margins set with minute setigerous tubercles; central fovea well-marked. Sternum not markedly convex in the middle, scarcely longer than broad. Abdomen with a pair of short anterior-marginal conical angles, not spines nor cusps; no lateral marginal cusps; a pair of short sharp divergent spines directed obliquely upwards and backwards occupy the posterior margin, one at each angle, while beneath these and behind lies a shorter, stout (variable in length), sharp, conical cusp. The dorsal area is not punctured, but the posterior and lateral areas are pitted on the ridges of the folds of the integument with more or less regular rows of minute punctures.

The vulval scape is similar to that of the allied species in general character, but differs in detail, see Plate.

*Colour*: abdomen varying in colour from yellow-white to sooty-black or metallic blue-brown, the light-coloured forms being often mottled or blotched.

*Hab.* Mexico (*Mus. Brit.*), Omilteme, Teapa (*H. H. Smith*); Guatemala (*Mus. Brit.*), Retalhuleu, Volcan de Fuego, Coban, Menché, Ayutla, Cubilguitz, Tactic, Sakiyác, Chiacam, Tamahu (*Sarg*); Panama, Bugaba (*Champion*).—Brazil [1] [2].

### 14. **Micrathena triserrata,** sp. n. (Tab. L. figg. 17, 17 *a–c*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 10 millim.

General characters similar to those of *M.* 12-*spinosa*, the thoracic area of the carapace being very gibbous.

Abdomen dorsally quite flattened, entirely, but not very closely, punctured, armed on the anterior margin with two short sharp spines directed straight forwards and slightly upwards; with three lateral marginal, short, conical cusps on each side, the first more remote from the two posterior ones, which are adjacent; bifurcating posteriorly into two broad, compressed, short, trifid spurs, each branch being very short, compressed, conical, subequal, having a sharp apex.

The vulval scapus has a transverse cavity in front, and is otherwise generally similar in character to that of the allied forms, see Plate.

*Colour*: abdomen brown, with a central oval yellow spot and lateral marginal yellow band.

*Hab.* Guatemala (*Sarg*).

### 15. **Micrathena quadriserrata,** sp. n. (Tab. L. figg. 18, 18 *a*, *b*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 9 millim.

General characters similar to those of *M. triserrata*, the thoracic area of the carapace being strongly gibbous. The abdomen is finely, but not very closely, punctured throughout, having a pair of sharp anterior marginal spines, directed straight forwards and slightly upwards, and two median lateral marginal sharp cusps, their apices directed backwards; posteriorly it is compressed and divided into a broad, flattened, quadrifid spur, the two central branches being the largest, these spurs, however, varying much in character in different individuals and according to the condition of the spider.

The form of the vulval scapus is generally similar to that of other allied forms, though differing in special characters, see Plate.

*Colour*: carapace and legs dull olive-brown or bluish olive-green, the former with a broad marginal dark brown band. Abdomen sooty-black, with a broad, oblong, central, dorsal pale area, and a lateral marginal pale band.

*Hab.* Guatemala, Quezaltepeque (*Sarg*).

The particulars as to colour are taken from Mr. Sarg's notes.

### 16. **Micrathena serrata,** sp. n. (Tab. L. figg. 19, 19 *a–e*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

General characters as in *M. inæqualis*, except that the thoracic area of the carapace is much higher than the cephalic, being very gibbous and similar to that of *M.* 12-*spinosa*. Abdomen also very similar to that of *M. inæqualis*, but besides having two anterior marginal sharp spines, there are four lateral marginal minute cusps in the posterior two-thirds (instead of one only); the posterior spur on each side is deeply bifid, each branch being equal in length and thickness, having also at their base behind another minute cusp.

The vulva is also very like that of *M. inæqualis*, but differs in detail, see Plate.

*Colour*: abdomen with the entire dorsal area yellow and the muscle-scars black; lateral and posterior areas more or less mottled irregularly with yellow spots, the lateral area sometimes with two very definite broken lines running down to the spinners.

*Hab.* Panama, Volcan de Chiriqui (*Champion*).

### 17. **Micrathena inæqualis,** sp. n. (Tab. L. figg. 20, 20 *a–d*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 8 millim.

General characters similar to those of *M. gladiola*, except that the cephalic and thoracic regions are separated by a transverse depression and the sternum is not markedly convex in the central area. Abdomen with a pair of short, sharp, slightly divergent, anterior marginal spines, a pair of minute lateral marginal cusps situated rather behind the middle, and a pair of subequal spines on each posterior angle, the lower branch of what is really a bifid spur being slightly smaller. The vulval scape has a transverse cavity in front, and is convex, with a wedge-shaped tongue, see Plate.

*Colour*: abdomen with a yellow anterior marginal transverse band, a more or less broken lateral marginal band, a pair of adjacent, reniform, central, anterior dorsal blotches, and a large transverse-oval posterior dorsal blotch, the latter having a broad branch running out on each side to the base of the posterior spines. Between these spines and the spinners, behind, lies a series of transverse broken bands or definite rows of blotches. On the lateral area are four or five broken transverse bands running down to the spinners. The markings, however, are very variable.

*Hab.* GUATEMALA, Volcan de Fuego (*Sarg*).

Mr. Sarg gives the colour of the abdomen as "chrome-yellow, polished, shiny, with numerous indentations of intense black set in blotches of duller black; the posterior spines burnt sienna; underside black, with yellow-spotted lines crossing the segments."

### 18. **Micrathena subspinosa,** sp. n. (Tab. LI. figg. 17, 17 *a–c*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

This species is almost precisely similar to *M.* 12-*spinosa* in general character, but the third, lower, cusp on the posterior bifid spur is remote from the two main cusps in the middle of the spur behind, and thus becomes trifid. The posterior margin of the vulva, though presenting a minute median angle, has not a tongue-like prominence which is noticeable in *M.* 12-*spinosa*.

*Colour*: similar to that of *M.* 12-*spinosa*, the posterior spurs dark brown, apically black.

*Hab.* GUATEMALA, Ayutla (*Sarg*).

### 19. **Micrathena 12-spinosa.** (Tab. LI. figg. 18, 18 *a–c*, ♀.)

*Acrosoma* 12-*spinosum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 63, t. 8. figg. 12, 12 *a–e* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 18, t. 1. figg. 14, 14 *a*, *b* (♀)[2]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 250[3].

Type, ♀, in coll. Godman & Salvin. Total length 5·75 millim.

Characters similar to those of *M. gladiola*, except the following: carapace convex and raised behind the central thoracic fovea, which, together with a lateral cephalic fovea on each side, is deeply marked; sternum not markedly convex in the middle; patellæ of legs much dilated behind, with a groove above the dilatation; abdomen with a pair of short sharp spines on the anterior angles, very wide apart and divergent, two median lateral marginal spines on each side, and a stout trifid cusp at each posterior angle, the central spur the longer, the upper next in length, the lower the smallest, slightly depressed in a forward direction.

The vulval scapus is similar in general character to that of the allied species, consisting of a transverse convex chitinous bar, concave in front, its posterior margin produced into a characteristic median triangular prominence.

*Hab.* MEXICO, Tepic (*fide Banks*[3]); GUATEMALA[2], Sakiyác (*Sarg*); PANAMA, Bugaba (*Champion*[1]).

## 20. **Micrathena schreibersi.** (Tab. LI. figg. 19, 19 *a*, ♀.)

*Acrosoma schreibersii*, Perty, Del. Anim. art. Bras. p. 194, t. 38. fig. 9 (♀)[1]; E. Simon, Hist. Nat. Araign. édit. 2, i. p. 848, fig. 895 (♀)[2].

*Plectana macrocantha*, Walck. Ins. Apt. ii. p. 183[3].

Total length, ♀, including posterior spines, 19 millim.

♀. Carapace deeply indented transversely just in front of the central fovea. Central posterior eyes one diameter apart, central anteriors half a diameter apart; laterals almost in contact. Clypeus equal to one diameter of an anterior central eye. Sternum with slight bosses in front of coxæ i.–iii., the first being the most conspicuous; not produced posteriorly to lie between coxæ iv., but its conical point terminating in front of these segments. Abdomen with a pair of longer or shorter (variable) conical cusps on the anterior margin, divergent and separated by about one and a half times the length of one of them; a pair of longer anterior dorsal spines obliquely directed forwards, separated by the length of one of them; a single short lateral marginal cusp on each side midway between the anterior dorsal and the posterior spines; a long stout spine on each posterior angle, divergent and curving obliquely upwards, two-thirds as long as the dorsal area of the abdomen; and a single sharp spine below and behind each of the latter, divergent, directed backwards and downwards, about as long as the anterior dorsals. The chitinous tubular sheath forms a long truncate cone.

*Colour*: very variable. Carapace, sternum, and legs pitch-black, tarsi of the latter dull orange. Legs often entirely dull orange. Abdomen black; dorsal area as far as the anterior dorsal spines (but not including the margins) dull orange; basal half of the posterior spines, and a broad band beneath the lateral margin, extending as far as and including the anterior marginal cusps, bright orange; the bases of the posterior spines also united behind by a band of orange, having another band below it; behind the spinning-cone lies a broad oblong orange blotch, and there is a smaller one in front and another on each side. Often the whole of the abdomen is black, including the posterior spines.

The vulval scapus is without a transverse fovea in front, as in many of the allied species, but is convex and continuous with the anterior integument, being notched or emarginate in the centre of its posterior margin. Seen from behind, there is a transverse groove immediately beneath the sinuous margin of the scapus, followed by a transverse convexity, then another transverse groove bearing the two genital orifices, one on each side, each being guarded posteriorly by a thin, erect, rounded, chitinous plate.

*Hab.* MEXICO, Teapa (*H. H. Smith*).—SOUTH AMERICA, Brazil[1 3 4], Lower Amazons (*F. O. P.-C.*), Ecuador (*Rosenberg*).

This handsome species was found commonly by myself in the dark glades, beneath the cacao-trees and in the forest, at Pará, on the Amazons. The male is unknown to me.

## 21. **Micrathena sagittata.** (Tab. L. figg. 20, 20 *a–d*, ♂; 21, 21 *a–d*, ♀.)

*Plectana sagittata*, Walck. Ins. Apt. ii. p. 174[1]; Abbot, Georgian Spiders, no. 50 (♀)[2].

*Acrosoma sagittatum*, McCook, Amer. Spid. iii. p. 214, t. 21. figg. 8, 8 *a–c* (♀), t. 28. fig. 7 (♀)[3].

*Epeira spinea*, Hentz, Journ. Bost. Soc. Nat. Hist. vi. p. 21, t. 3. fig. 9 (♀)[4]; Spiders U.S. (ed. Burgess), p. 123, t. 14. fig. 9 (♀)[5].

*Acrosoma spinea*, Emerton, Trans. Conn. Acad. Sci. vi. p. 326, t. 38. figg. 5, 7 (♀), 6, 8 (♂)[6].

Type, ♀ = fig. no. 50, Abbot; deuterotype, ♂, in coll. Emerton. Total length, ♀ 12, ♂ 4 millim.

General characters similar to those of *M. gladiola*, except that the sternum is not so markedly convex. Abdomen with the anterior dorsal spines, which are stout basally, distally sharp, divergent, and directed obliquely forwards (but not close over the carapace, as in *M. gladiola*); a pair of very stout divergent spines, bluntly pointed at their apex, directed obliquely upwards, straight or curved, sometimes curving

downwards, one at each posterior angle, and sometimes a minute cusp also at the base of each of these, behind and below; with also a median lateral marginal stout cusp curved backwards.

*Colour*: abdomen with the dorsal surface bright yellow, the bases of the spines bright orange, the apices black, the posterior spines sometimes half black; lateral areas spotted with broken longitudinal lines of yellow spots; a more conspicuous wedge-shaped bar of transverse carmine blotches running from between the posterior spines to the spinning-tube, which is purple.

*Vulval scapus* consisting basally of a broad, convex, shining boss, covering a cavity, which is divided centrally by a narrow carina, the apex of the latter being dilated and abruptly recurved. The genital orifices lie at the bottom of the cavities on each side.

♂. Abdomen narrower in front, much broader behind; with two lateral cusp-like projections, usually having a black point beneath the epidermis, marking the original situation of the long spines noticeable in the immature male. These tend to disappear as the spider becomes adult, while the apical spurs become even more obsolete.

Carapace and legs bright orange-red, the latter entirely devoid of spines; abdomen paler orange-yellow, with a pair of conspicuous white spots situated transversely on the posterior third.

The tibial spur of the palpus is characteristic, differing from that of *M. brevipes* in not being bifid, see Plate.

*Hab.* North America [1–6].—Mexico, Orizaba, Atoyac, Teapa (*H. H. Smith*), Yucatan [7]; Guatemala [7], Guatemala city, Coban, Tamahu, Cunen, Chiacam, Santa Ana (*Sarg*).

Mr. Sarg remarks that these spiders construct their webs amongst the leaves of a very thorny Bromelia, where they are safe from almost any attack. The colour is variable, but made up of gamboge, lemon-yellow, and carmine.

So far as one can judge, it seems probable that the above synonymy is correct. An example of *Acrosoma spinea*, determined by Emerton, is contained in the British Museum; while McCook's conclusion as to the identity of this species with *M. sagittata* (Walck.) must also be accepted. The specimens before me from North America are very much smaller than those from Mexico or Guatemala, and have the posterior spines shorter, stouter, and less divergent; but I can at present find no character in either sex on which one would feel justified in separating the two forms.

### 22. **Micrathena gladiola.** (Tab. LI. figg. 22, 22 *a–c*, ♀.)

*Plectana gladiola*, Walck. Ins. Apt. ii. p. 182 (♀) [1].

*Acrosoma gladiolum*, Keyserl. Spinn. Amer., Epeiridæ, p. 8, t. 1. figg. 5, 5 *a* (♀) [2].

*Acrosoma aculeatum*, C. L. Koch, Die Arachn. iii. p. 58, fig. 211 (♀) [3] (nec Fabr.).

Total length, ♀, 12 millim.

Carapace uniformly convex, broadly rounded in front, twice as long as broad, scarcely raised behind the thoracic fovea, which is distinctly visible. Central quadrangle of eyes wider behind, posterior centrals larger, one diameter apart; anterior centrals half a diameter from the posterior centrals and from each other. Lateral eyes situated on a low tubercle, almost in contact, distant from the posterior centrals by three and a half diameters of the latter. Clypeus equal to one diameter of an anterior central eye. Fang-groove with four teeth above, three below. Sternum exceedingly convex in the middle, forming an oval tubercle. Legs 4, 1, 2, 3, clothed with fine bristles only; coxæ iv. almost in contact; femora i.–iv. finely granulose with minute setigerous granules in front and beneath. Abdomen with a pair of anterior spines, adjacent, parallel, slightly divergent at the apex; a short, stout, coniform, median lateral, marginal cusp; a single, longer, stout, widely divergent, slightly upturned spine at each posterior dorsal angle; and a short, stout, conical, cusp-like spine at the base of these behind and beneath.

*Hab.* Guatemala [2], Coban (*Sarg*); Panama, Bugaba (*Champion*).—South America [1 3].

### 23. **Micrathena bimucronata.** (Tab. LI. figg. 23, 23 *a–d*, ♀.)

*Acrosoma bimucronatum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 302, t. 36. figg. 14, 14 *a*, *b* (♀)[1].

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

Characters similar to those of *M. gladiola*, except that the sternum is without a strong, convex, median area. The abdomen has a very small conical tubercle on each anterior angle, and a long stout spine, as long as the dorsal area of the abdomen itself, at each posterior angle, but there are no lateral marginal cusps or spines. The direction of these spines in a horizontal or oblique direction upwards varies very much in individual examples. The vulva, though similar in general characteristics to that of the allied species, has special distinctive features, see Plate.

*Hab.* GUATEMALA, Menché, Cubilguitz, Cahabon (*Sarg*[1]).

### 24. **Micrathena catenulata,** sp. n. (Tab. LI. figg. 24, 24 *a–c*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 7 millim.

Carapace and general characters similar to those of *M.* 12-*spinosa*. Abdomen elongate, having the anterior marginal angles prominent, but not bearing spines; two stout, sharp, conical, erect spines on the anterior dorsal third; also a pair of stout, short, posterior spurs, their apices sharp and slightly curved downwards. In immature examples there is in addition a small cusp at the base of each of these latter spurs behind. Sternum not produced posteriorly. The vulval scapus, viewed in profile, forms a broad blunt conical prominence, its apex slightly turned forwards; seen from behind, it is broad apically, the genital orifices being wide apart, set on each side of a central convexity at the base.

*Colour*: carapace brown-black, with steel-blue reflections, the thoracic convexity pale orange. Legs of the same colour as the carapace, the coxa, trochanter, and base of femur of each being pale yellow.

Abdomen entirely black, with a central dorsal series of five pure white round spots, the anterior the smallest, increasing in size; the anterior group of three slightly remote from the fourth or largest spot, this with a smaller spot between the bases of the posterior spurs forming a second group. The lateral margins have six pure white spots, the fifth being transverse elongate, sometimes coalescent, each posterior spur having a white slash on its outer side. On each side of the ventral area are three white dots, while behind the spinners lies a larger white spot. (These spots in nature are, according to Sarg, yellow.) In all the examples before me the abdomen has become more or less shrivelled, and it is possible that when gravid that of the female would be distended and not so elongate.

*Hab.* GUATEMALA, Sakiyac, Chamiquin, Cahabon, between Dolores and Chapallal, Quezaltepeque, Cubilguitz, Senahu, Ayutla (*Sarg*).

### 25. **Micrathena mitrata.**

*Epeira mitrata*, Hentz, Journ. Bost. Soc. Nat. Hist. vi. p. 22, t. 3. fig. 11 (♀)[1]; Spid. U.S. (ed. Burgess), p. 125, t. 14. fig. 11 (♀)[2].

*Acrosoma mitratum*, Emerton, Trans. Conn. Acad. Sci. vi. p. 327, t. 38. fig. 9 (♀)[3]; Banks, Proc. Calif. Acad. Sci. (3) i. p. 250[4].

*Acrosoma reduvianum*, McCook, Amer. Spid. iii. p. 213, t. 23. figg. 6, 6 *a–c* (♀), 7, 7 *a*, *b* (♂)[5] (nec Walck.).

*Hab.* NORTH AMERICA[1 2 3 5 6].—MEXICO, Tepic (*fide Banks*[4]).

This species is very similar to *M. spinulata*, but is distinguished by the absence of the anterior dorsal pair of minute spines. Hentz, Emerton, and McCook do not mention the small spines in their descriptions, nor do they appear in the figures given by them.

[26. **Micrathena reduviana.**

*Acrosoma reduviana*, Walck. Ins. Apt. ii. p. 201 (♀)[1]; Abbot, Georgian Spiders, no. 49 (♀)[2]
[nec *A. reduvianum*, McCook; nec E. Simon, Hist. Nat. Araign. édit. 2, i. p. 854, fig. 914 (♀)].

Type, ♀, fig. 49, Abbot's Georgian spiders, MS. in Mus. Brit.

*Hab.* North America [1 2].

Walckenaer (*loc. cit.*) says that *M. reduviana* is "armé de huit épines," which is confirmed by Abbot's figure, and it is difficult therefore to understand how McCook came to identify it with *M. mitrata* (Hentz). The species is included here for the sake of clearing up its characteristics and settling its identity.]

27. **Micrathena furcula.** (Tab. LI. figg. 25, 25 *a–c*, ♀.)

*Acrosoma furcula*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 60, t. 8. figg. 11, 11 *a–d* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 17, t. 1. figg. 13, 13 *a* (♀)[2].

Type, ♀, in coll. Godman & Salvin. Total length 11 millim.

Characters as in *M. sagittata*, except that the femora of the legs are less granulose, the sternum is not markedly convex in the centre, and the patellæ of the legs are more decidedly dilate in the middle posteriorly. Abdomen elongate-oval, without anterior or lateral marginal spines or cusps, but with a broad deeply bifid prolongation behind, the two branches closely adjacent to each other, coniform, bearing a short sharp spine at their apex.

*Hab.* Guatemala [2], Dolores, Menché, Chapallal (*Sarg* [1]).

28. **Micrathena fericula.**

*Acrosoma fericulum*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 64, t. 8. figg. 13, 13 *a–d* (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 13, t. 1. fig. 10 (♀)[2].

Type ♀, androtype ♂ (immature), in coll. Godman & Salvin. Total length, ♂ ♀, 3 millim.

*Hab.* Guatemala [2], Menché, Yzabal (*Sarg* [1]); Panama, Bugaba (*Champion* [1]).

The females received of this species are, so far as I can make out, quite immature, and the males obviously so. If the females were adult, it is hardly likely that they would be of the same length as immature males of the same species. It appears to me to be possible that both sexes are the young of *M. schreibersi*.

The following species are unknown to me:—

29. **Micrathena petersi.**

*Acrosoma petersii*, Tacz. Horæ Soc. Ent. Ross. ix. p. 277, t. 6. fig. 28 (♀)[1]; Keyserl. Spinn. Amer., Epeiridæ, p. 9, t. 1. figg. 6, 6 *a* (♀)[2].

Type ♀, androtype ♂, in coll. Univ. Warsaw. Total length, ♀ 5, ♂ 3·3 millim.

*Hab.* Guatemala [2].—French Guiana [1].

30. **Micrathena trapa.**

*Acrosoma trapa*, Getaz, An. Inst. Costa Rica, iv. p. 105 (♀)[1].

*Hab.* Costa Rica, Buenos Aires (*Pittier* [1]).

### 31. **Micrathena sedes.**

*Acrosoma sedes,* Getaz, An. Inst. Costa Rica, iv. p. 105 (♀)[1].

*Hab.* Costa Rica, Palmares (*Pittier* [1]).

## TRICANTHA.

*Acrosoma,* sous-genre *Tricantha,* E. Simon, Hist. Nat. Araign. i. p. 293 (1864).

Type *T. tricornis*, E. Simon. Brazil.

It is probable that the type of *Tricantha* is identical with *Plectana tricuspidata*, Blackwall [Ann. & Mag. Nat. Hist. (3) ii. p. 38 (1863)], from Rio Janeiro, but one cannot be sure without actual comparison.

### 1. **Tricantha tricornis.** (Tab. LI. figg. 26, 26 *a*, ♀.)

*Tricantha tricornis,* E. Simon, Hist. Nat. Araign. i. p. 293, fig. 136 (♀)[1].

Type, ♀, in coll. E. Simon. Total length, including posterior spine, 6 millim.

Carapace broader than long, wider behind, cordiform. Cephalic region tuberculiform, convex, raised, produced anteriorly, overhanging the clypeus. Eye-groups closely situate, posterior row almost straight, anterior row slightly procurved, central quadrangle broader than long, narrower in front. Posterior centrals nearly two diameters apart, one diameter from anterior centrals, the latter being themselves one diameter apart; lateral eyes almost in contact, posterior laterals one and a half diameters from the posterior centrals. Clypeus as high as three diameters of an anterior central eye. Sternum longer than broad, triangular, produced between coxæ iv., coalescing with the dorsal chitin of the carapace. Legs 4, 1, 2, 3, devoid of spines, patellæ strongly geniculate.

Abdomen triangular, broader in front, having a long stout spine at each anterior angle and a similar spine at the central posterior angle, the apices of the three spines forming an equilateral triangle. The direction of the spines varies with the condition of the spider and the shrinkage or otherwise of the abdomen; the two anterior ones, in normal cases, are directed forwards and slightly upwards, the posterior spine backwards and more decidedly upwards. The whole abdomen is covered with a horny integument, the dorsal area having a median series of five pairs of sigilla and a lateral row of four sigilla on each side. The spinners are enclosed at the apex of a tubular sheath as in *Gasteracantha* and *Micrathena*, the spiracular orifice being as in these genera also situated on the anterior margin of the tube.

For vulva, see Plate.

*Hab.* Guatemala, Montaña de Chilasco (*Sarg* [1]).—Brazil [1].

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The systematic position of the following genera and species of the family Argyopidæ is doubtful:—

## HYPOGNATHA.

*Hypognatha,* Guérin, Rev. Zool. (1839) p. 110; E. Simon, Hist. Nat. Araign. édit. 2, i. p. 874.
*Calydna,* O. P.-Cambridge, Ann. & Mag. Nat. Hist. (4) xiv. p. 174 (1874).
*Mutina,* O. P.-Cambridge, P. Z. S. 1881, p. 771.

### 1. **Hypognatha nasuta.** (Tab. LI. figg. 27, 27 *a*, ♂; 28, 28 *a*, ♀.)

*Hypognatha nasuta,* O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 222 (♂ ♀)[1].

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 2·25, ♀ 3 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith* [1]).

## PRONOUS.

*Pronous*, Keyserling, Verh. zool.-bot. Ges. Wien, xxx. p. 547 (1880); E. Simon, Hist. Nat. Araign. édit. 2, i. p. 863; O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 281.
*Paphlagon*, O. P.-Cambridge, loc. cit. p. 117 (1893).

Type of *Pronous*, *P. tuberculifer*, Keyserl., Peru; of *Paphlagon*, *P. beatus*, O. P.-Cambr., Mexico.

### 1. Pronous tuberculifer.

*Pronous tuberculifer*, Keyserl. Verh. zool.-bot. Ges. Wien, xxx. p. 548, t. 16. figg. 1, 1 *a*, *b* (♀), 1 *c* (♂)[1]; Spinn. Amer., Epeiridæ, p. 35, t. 2. figg. 31, 31 *g* (♀), 31 *b–f* (♂)[2]; O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 281, t. 36. figg. 13, 13 *a–e* (♂)[3].
*Paphlagon beatus*, O. P.-Cambr. loc. cit. p. 117, t. 14. figg. 10, 10 *a–e* (♀)[4].

Type ♀, androtype ♂, in coll. Univ. Warsaw. Total length, ♀ 5, ♂ 3·5 millim.

*Hab.* Mexico, Teapa in Tabasco (*H. H. Smith*[3 4]).—Peru[1 2].

## WITICA.

*Witica*, O. P.-Cambridge, Biol. Centr.-Amer., Arachn. Aran. i. p. 160 (1894).
*Physiola*, E. Simon, Hist. Nat. Araign. édit. 2, i. p. 875 (1895).
*Bion*, O. P.-Cambridge, loc. cit. p. 244 (1898).
*Vitica*, E. Simon, op. cit. ii. p. 1003 (1903).

Type of *Witica*, *W. talis*, O. P.-Cambr. (♂), Mexico; of *Physiola*, *P. nigrans*, E. Simon, Venezuela; of *Bion*, *B. brevis*, O. P.-Cambr. (♂), Mexico.

### 1. Witica talis.

*Witica talis*, O. P.-Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 160, t. 19. figg. 13, 13 *a–c* (♂)[1].
*Bion brevis*, O. P.-Cambr. loc. cit. i. p. 244, t. 30. figg. 5, 5 *a–g* (♂)[2].
*Physiola nigrans*, Simon, Hist. Nat. Araign. édit. 2, ii. p. 876 (♂ ♀)[3].

Types, ♂, of *W. talis* and *B. brevis* in coll. Godman & Salvin; of *P. nigrans* in coll. E. Simon. Total length 2 millim.

*Hab.* Mexico, Teapa (*H. H. Smith*[1 2]).—Venezuela, San Esteban[3].

The types of the two first-mentioned species are identical and they agree with the description of *P. nigrans* from Venezuela.

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The enumeration of the species of Araneidea contained in the collections before me being now concluded, I am able to give a complete Synopsis of the whole of the families represented in the Central-American fauna, the arrangement adopted differing somewhat from that followed in the preceding pages.

Sect. MYGALOMORPHÆ (p. 4).

The plane of the articulation of the mandibles vertical. Pulmonary sacs four in number.

A. Tarsi without claw-tufts; inferior claw nearly always distinct.

*a*. Base of mandible without a rastellum at the apex. Spinning-mammillæ long, slender, widely separated at the base . . . Dipluridæ (p. 34).

*b*. Base of mandible with a more or less well-developed rastellum at the apex. Spinning-mammillæ short, stout, and closely situate at the base . . . . . CTENIZIDÆ (p. 5).

B. Tarsi with claw-tufts; inferior claw seldom present (sometimes in immature forms and in some males on tarsi iv.) . . . . THERAPHOSIDÆ (p. 13).

## Sect. ARACHNOMORPHÆ (p. 42).

The plane of the articulation of the mandibles horizontal. Pulmonary sacs two in number (except in *Hypochilus*), the second pair replaced by tracheal tubes.

A. Cribellum and calamistrum present.

*a*. Tracheal stigmata situated midway between the genital rima and the spinners. Mandibles soldered together at their base . . . . . FILISTATIDÆ (p. 45).

*b*. Tracheal stigmata situated immediately in front of the spinning-mammillæ. Mandibles not soldered together basally.

i. Tarsal claws 3.

$a^1$. Ungual tufts present on the tarsi . . . . . PSECHRIDÆ (p. 356).

$b^1$. No ungual tufts on the tarsi.

$a^2$. Central anterior eyes abnormally large . . . . . DEINOPIDÆ (p. 359).

$b^2$. Central anterior eyes normal in size.

$a^3$. Anal tubercle elongate, conical . . . . . ULOBORIDÆ (p. 360).

$b^3$. Anal tubercle short, semicircular . . . . . DICTYNIDÆ (p. 357).

ii. Tarsal claws 2.

$a^4$. Tarsi i. and ii. not scopulate. Ungual tuft present . . ACANTHOCTENIDÆ (p. 354).

$b^4$. Tarsi i. and ii. densely scopulate beneath. Ungual tuft absent . . . . . ZOROPSIDÆ (p. 353).

B. Cribellum and calamistrum absent.

*a*. Tracheal stigmata (or second pair) widely separate, not migrant, situated close to the first pair (whether pulmonary or tracheal).

$a^1$. The first pair of stigmata opening on to pulmonary sacs.

$a^2$. Colulus present . . . . . DYSDERIDÆ (p. 42).

$b^2$. Colulus absent . . . . . OONOPIDÆ (p. 44).

$b^1$. The first pair of stigmata (as well as the second) opening on to tracheal tubes . . . . . CAPONIIDÆ (p. 43).

*b*. Tracheal stigmata (or second pair) coalescent, migrant, more or less remote from the genital rima.

*aa*. Eyes 8.

I. Tarsus iv. without serrate bristles or single series of serrate spines.

$a^3$. Posterior pair of spinning-mammillæ absent or much shorter than the anterior pair . . . . . ZODARIIDÆ (p. 53).

$b^3$. Posterior pair of spinning-mammillæ not shorter than the anterior pair.

$a^4$. Posterior spinning-mammillæ very long, flagelliform, tapering, attenuate . . . . . HERSILIIDÆ (p. 350).

$b^4$. Posterior spinning-mammillæ not abnormally long or flagelliform.

* Tarsal claws 2. Ungual tufts present.

$a^5$. Anterior pair of spinning-mammillæ set wide apart at their base . . . . . GNAPHOSIDÆ (p. 54).

$b^5$. Anterior pair of spinning-mammillæ set close together at their base.

$a^6$. Apex of protarsi without a hard chitinous rim, but furnished with a trilobate membrane . HETEROPODIDÆ (p. 118).

$b^6$. Apex of protarsi with a hard chitinous rim, not furnished with a trilobate membrane.

$a^7$. Eyes situated in an almost straight transverse row . . . . . SELENOPIDÆ (p. 115).

$b^7$. Eyes situated in two or three transverse rows.

$a^8$. Legs iii. and iv. very much shorter than i. and ii. Mandibles weak, sometimes with very small teeth . . . . . THOMISIDÆ (p. 127).

$b^8$. Legs iii. and iv. not much shorter than i. and ii. Mandibles strong, with stout teeth.

$a^9$. Central anterior eyes very large. Eyes of posterior row widely separate, forming a large quadrangle . . . SALTICIDÆ (p. 166).

$b^9$. Central anterior eyes not or scarcely enlarged. Eyes of posterior row not widely separate, forming a transverse row.

$a^{10}$. Eyes situated in two transverse rows.

$a^{11}$. Tracheal stigmata more or less remote from the spinning-mammillæ . . . . . ANYPHÆNIDÆ (p. 92).

$b^{11}$. Tracheal stigmata set immediately in front of the spinning-mammillæ . . . . . CLUBIONIDÆ (p. 61).

$b^{10}$. Eyes situated in three, or four, transverse rows . . . . . CTENIDÆ (p. 107).

** Tarsal claws 3.

$a^{12}$. Tibia of male palpus with an apical external spur.

$a^{13}$. Protarsi i. and ii. without a central apical spine beneath . . . . . SENOCULIDÆ (p. 349).

$b^{13}$. Protarsi i. and ii. with a central apical spine beneath.
  $a^{14}$. Eyes in two rows . . . . . AGELENIDÆ (p. 332).
  $b^{14}$. Eyes in three rows . . . . . PISAURIDÆ (p. 303).
$b^{12}$. Tibia of male palpus without an apical external spur.
  $a^{15}$. Eyes of anterior row subequal or centrals sometimes larger. Labium and maxillæ shorter in proportion . . . . . LYCOSIDÆ (p. 314).
  $b^{15}$. Central eyes of anterior row much smaller. Labium and maxillæ longer in proportion . OXYOPIDÆ (p. 338).

II. Tarsus iv. set with numerous serrate bristles, or with a single series of serrate spines beneath.
  $a^{16}$. Tarsus iv. set with a single series of stout, curved, serrate spines beneath . . . . . THERIDIIDÆ (p. 371).
  $b^{16}$. Tarsus iv. set with numerous serrate bristles.
    $a^{17}$. Tibiæ and protarsi i. and ii. furnished with a series of widely separate, very long spines, the interspaces being set with a row of shorter curved spines, increasing in length distally . . . . . MIMETIDÆ (p. 409).
    $b^{17}$. Tibiæ and protarsi not so furnished.
      $a^{18}$. Legs shorter and stouter. Maxillæ not inclined over labium . . . . . ARGYOPIDÆ (p. 412).
      $b^{18}$. Legs very long and slender. Maxillæ inclined over labium . . . . . PHOLCIDÆ (p. 365).
  *bb*. Eyes 6.
    $a^{19}$. Mandibles not soldered together at their base. Fang of mandible long and slender . . . . . LEPTONETIDÆ (p. 45).
    $b^{19}$. Mandibles soldered together at their base. Fang of mandible short, but weak. Colulus present or absent . SCYTODIDÆ (p. 48).

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The following genera or species have been added to the Mexican or Central-American fauna during the course of publication of the present volume, or have been accidentally omitted in our enumeration:—

THERAPHOSIDÆ.

*Citharacanthus*, Pocock, Ann. & Mag. Nat. Hist. (7) viii. p. 551 (1901), n. g., for *Eurypelma longipes*, F. Cambr. anteà, p. 21.

*Dugesiella crinita*, Pocock, loc. cit. p. 552.—Mexico, Guanajuato.

*Aphonopelma*, Pocock, loc. cit. p. 553, n. g., for *Eurypelma seemanni*, F. Cambr. anteà, p. 26.

*Acentropelma*, Pocock, loc. cit. p. 554, n. g., for *Metriopelma spinulosum*, F. Cambr. anteà, p. 33.

*Eurypelma helluo*, Simon, Act. Soc. Linn. Bord. xliv. p. 323; Banks, Proc. Calif. Acad. Sci. (3) i. p. 208.—Mexico, Sonora.

### Scytodidæ.

*Scytodes fusca* (Walck.), Banks, Proc. Calif. Acad. Sci. (3) i. p. 209.—Mexico, Hermosillo.

### Clubionidæ.

*Odo lenis*, Keyserl. Verh. zool.-bot. Ges. Wien, xxxvii. p. 455, t. 6. fig. 36 (♀) (1887).—Nicaragua.

*Thargalia venusta*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 227, t. 13. fig. 35.—Mexico, San Miguel de Horcasitas.

### Heteropodidæ.

*Olios luctuosa*, Banks, loc. cit. p. 267, t. 16. fig. 15.—Mexico, Tepic.

### Salticidæ.

*Dendryphantes ruber*, Peckh. Proc. Nat. Hist. Soc. Wisc. 1885, p. 66 (*Philæus*); Occas. Papers Nat. Hist. Soc. Wisc. iii. p. 47.—Guatemala.

*Ashtabula glauca*, Simon, Ann. Soc. Ent. Belg. xlvi. p. 31 (1902).—Mexico, Cuernavaca, Guanajuato.

### Argyopidæ.

*Singa mæsta*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 256, t. 15. fig. 3.—Mexico, Tepic.

*Gea prædicta*, O. P. Cambr. Biol. Centr.-Amer., Arachn. Aran. i. p. 267, t. 37. figg. 11, 11 *a–f* (♂).—Mexico, Teapa.

## Order OPILIONES.

The members of this order, known also as the "Phalangidea," or by the trivial name of "Harvestmen," must have taken their origin ages ago, even before the Carboniferous period, together with the ancestors of the Scorpiones, Pedipalpi, Acaridea, Chernetidea, &c., springing from a vast congeries of more or less problematic forms to which the name Æropneustea has been applied. It is probable that all the present existing Land-Arachnids diverged from the still earlier congeries of water-breathing forms, Hydropneustea, represented by the fossil Gigantostraca and Limuloids, and in recent and present times by the only surviving forms, *Limulus* and the Pantopods.

The period of their origination must, at any rate, have preceded the appearance during the Carboniferous epoch of the air-breathing scorpion, *Anthracoscorpius*. It is probable that the specialization began during the still earlier Silurian times, since in this period there existed an Arachnid which is a true scorpion in every sense, except that it has apparently no trace of air-breathing lung-sacs. It cannot at present be definitely decided whether these Silurian scorpions were "air-breathers" or "water-breathers," but it is probable that about this period of geological history modern Land-Arachnids, and with them the Opiliones, became specialized from water-breathing ancestors, since undeniable Opilionids, represented by *Eophrynus* and various other genera, existed in Carboniferous times.

The habits of the Opiliones are much simpler than those of the Araneidea, for although, like them, they are carnivorous, they make no web for the ensnaring of their prey, and the production and care of their offspring resolves itself into laying their eggs in convenient chinks and crevices, where the female leaves them, taking no further interest in their welfare.

The various species differ remarkably in structural character from the true spiders, although they approach more closely the Rhynchostomi or Acaridea in this respect. The "prosoma" and "opisthosoma," which are distinctly separated by a narrow pedicle in all the Araneidea into two main portions,—the carapace and abdomen—are in the Opiliones and Acaridea fused together. The traces of the original segmentation of the opisthosoma are still in strong evidence, the terminal four segments being even now free and unfused amongst the former, but in the Acaridea they have become entirely obsolete. The "Harvestmen," as well as the "Mites" and "Ticks," breathe by means of stigmata communicating with a system of tracheal tubes, the openings in the case of the Opiliones being two in number, situated on the third opisthosomatic segment, behind the coxæ of the fourth pair of legs, there being also spiracles on the tibiæ of the legs.

The method of the fertilization by the male of the ova of the female differs entirely from that which obtains amongst the true spiders. Whereas in the latter case no

intromittent organ has ever been specialized, but its function assumed by the specialization of the second pair of appendages (the palpi) in the former case, in the Opiliones there is a well-developed intromittent male organ or "penis" corresponding with an homologous organ in the female, called the ovipositor. These organs lie beneath the first two opisthosomatic segments, which have migrated forwards towards the region of the mouth (very far forward in the Plagiostethi, less so in Mecostethi), crowding the coxal segments of the legs together and reducing the sternal sclerites to quite attenuate proportions.

The dorsal segments of the prosoma, constituting the so-called "carapace," are entirely fused and bear a pair of eyes, usually placed on a larger or smaller median tubercle. The first five dorsal segments of the opisthosoma are also completely fused, but the grooves marking the original divisions are distinctly traceable in very many Opiliones; while the last four segments are quite separate or free, united along their margins by connective tissue.

In the ventral aspect the "prosoma" is represented by the chelæ, palpi, and four ambulatory appendages, with the maxillæ and more or less obliterate sternal elements; the "opisthosoma" by the two genital segments, the segment bearing the spiracles, and the six free segments, the two terminals being, however, fused together.

The first pair of appendages are chelate for purposes of seizing and crushing prey, and in the males of many forms they are enormously developed. The second pair constitute the so-called "palpi," and usually terminate in a strong single claw. They are variously armed with formidable spines, and in such cases are used for the compression of the prey against the mandibles and maxillæ in the operation of mastication. The third pair of appendages are ambulatory in their function, constituting the first pair of legs. The fourth pair, usually considerably lengthened and slender, are in many cases further specialized, and the terminal segments are broken up into numerous small sections. They have ceased to be purely ambulatory, but have become used for tactile purposes, their function being analogous to that of the third pair of appendages in the Pedipalpi, most noticeable amongst the Phrynidæ. The fifth and sixth pairs are used for ambulatory purposes, while amongst the Cosmetidæ and Gonyleptidæ, for instance, the sixth pair is often in the male sex highly developed and armed with specialized spines, chiefly on the femoral segment.

It is as yet by no means clear what the exact use of these specialized posterior legs in the male sex may be, though possibly they serve as claspers in the act of copulation.

The tarsal claws vary in number in the different families, and have been utilized as a basis of the highest importance for the division of the Opiliones into three suborders by Loman.

For the present, however, the view adopted here is that recently put forward by Mr. R. I. Pocock, that the character of the sternal sclerites, with others of considerable

importance, are, taken collectively, of much greater systematic value than a mere coincidence in the relative number of the tarsal claws, and this, too, taken by itself.

We may therefore classify the order Opiliones (disregarding the Cyclophthalmi, which are not represented in our collection) into two suborders, as follows:—

SUBORDERS.

A. Genital aperture remote from the maxillæ . . . . . MECOSTETHI.
B. Genital aperture much nearer the maxillæ . . . . . PLAGIOSTETHI.

The first suborder can be subdivided into two main groups—Laniatores and Insidiatores, thus:—

GROUPS.

i. Sternum not, or only very slightly, dilate opposite the apex of coxa iv. Coxa ii. not bearing a sterno-maxillary process. Legs i. and ii. each with one, and iii. and iv. with two tarsal claws . . . . . LANIATORES.
ii. Sternum dilate at the base opposite the apex of coxa iv. Coxa ii. bearing a distinct sterno-maxillary process. Legs i.–iv. each with one tarsal claw only . . . . . [INSIDIATORES.]

## Suborder MECOSTETHI.

### Group **LANIATORES.**

Sternum forming a long and narrow sclerite lying between the coxæ of legs iii. and interposing between the mouth and the genital aperture, the latter lying between the coxæ of legs iv. Palpi stout, sometimes (in some Gonoleptidæ) very long; usually armed with more or less formidable spines, and terminating in a powerful claw. Legs i. and ii. terminating in one, and iii. and iv. in two tarsal claws; i. with the sterno-coxal (or maxillary) process coalescent with the basal segment or coxa; ii. without such process.

FAMILIES.

A. Second and third ventral opisthosomatic somites fused, without a dividing transverse groove. Palpi enlarged, more or less compressed and armed with setiform spines or stout basally enlarged spines; the terminal claw simple. Tarsi of legs iii. and iv. without a median vesicle beneath and between the claws.
*a*. Terminal tarsal claws of legs iii. and iv. with an inter-basal projection between them. Coxa iv. much dilated.
*a*[1]. Tibia of palpus much compressed, lamelliform, armed marginally with fine setiform spines only, not with stout basally enlarged spines . . . . . COSMETIDÆ, Perty.
*b*[1]. Tibia of palpus not compressed, lamelliform, armed marginally with long spines, their basal portion enlarged . . . . . GONOLEPTIDÆ, Sund.
*b*. Terminal tarsal claws of legs iii. and iv. without an inter-basal projection between them. Coxa iv. less dilated . . . . . ASSAMIOIDÆ, Sörens.

B. Second and third ventral opisthosomatic somites separated by a transverse fold. Palpi long, slender, cylindrical, almost or quite unarmed; the terminal claw not simply unciform, but dilate basally, piriform. Tarsi of legs iii. and iv. with a white vesicle beneath and between the claws . . . . . PALPINIDÆ, nov.

## Fam. COSMETIDÆ.

No sterno-coxal lobe on leg ii. Palpi not longer than the body; armed with five marginal spines only, the femur being compressed; the tibiæ flattened-lamelliform, dilate and concave beneath, thus fitting over the mandibles. Terminal tarsal claw of palpus usually about half the length of the tarsus. Spiracles exposed. Second and third opisthosomatic somites fused together, without visible suture. Coxa iv. often very much enlarged, especially in the male sex. Eye-tumulus low, without coniform tubercles. Legs iii. and iv. in some cases larger than i. and ii., in others subequal; i. and ii. each with one, and iii. and iv. with two tarsal claws, those of the last two pairs sometimes pectinate.

The Cosmetidæ may be divided into the following subfamilies, of which the first (including the genera *Gryne*, *Protus*, *Discosoma*, &c.) is not at present known to be represented in Central America. They may be separated thus:—

### SUBFAMILIES.

A. Tarsal claws of legs iii. and iv. pectinated . . . . . [DISCOSOMINÆ, nov.]
B. Tarsal claws of legs iii. and iv. not pectinated . . . . . COSMETINÆ, nov.

### Subfam. *COSMETINÆ*, nov.

So far as the generic groups are concerned, C. L. Koch and E. Simon have based their subdivisions chiefly on the number of segments in the tarsi, especially of leg i. Sörensen and Loman, while refraining from regarding these characters as of sufficient importance for the purpose, have not, so far as I can ascertain, proposed others any more satisfactory. It is quite true that the number of the tarsal segments varies very much in forms which otherwise are evidently closely allied; but, at the same time, so far as my experience goes, the number, at any rate in leg i., is quite constant in the same species, *e. g.* they are not liable to individual variation.

There are two courses open to us: (1) either to "lump" together all the forms here described under the subfamily Cosmetinæ, and place them under one generic heading, *Cosmetus*, Perty; or (2) carry out the subdivision based on the varying number of tarsal segments consistently throughout its minute ramifications. The latter plan is adopted here, owing to the great inconvenience of tabulating a number of species in a single generic group.

Of the genera indicated below, *Erginus* and *Cynorta* are perhaps the least satisfactory, because the relative size of legs iii. and iv., when compared with i. and ii., varies very much, and one is liable to find forms in which it is impossible to say whether they are "markedly" larger or not.

With regard to the identification of the genera of Perty and Koch, one can only at present ascertain what are the types and wait till some competent arachnologist has examined the type-species still existing in the museums at Berlin and Paris, and has definitely settled what their special characters may be.

The various genera belonging to this subfamily, some of which are only known to me as yet from South America, may be distinguished as follows:—

GENERA.

| | |
|---|---|
| A. Tarsus iii. with 6 segments. | |
| *a*. Tarsus i. with 5 segments, 1 and 2 slightly dilate (♂). . | PARAVONONES, gen. nov. |
| *b*. Tarsus i. with 6 segments, 1–3 slightly dilate (♂). | |
| 1. Segments of tarsi iii. and iv. not incrassate, compressed. | METAVONONES, gen. nov. |
| 2. Segments of tarsi iii. and iv. incrassate, compressed . | ERGINOIDES, gen. nov. |
| B. Tarsus iii. with from 7–10 segments. | |
| $a^1$. Tarsus i. with from 5–8 segments. | |
| $a^2$. Basal segments of tarsus i. only slightly enlarged (♂). | |
| $a^3$. Tarsus i. with 5 segments, 1 and 2 slightly enlarged (♂) . . . . . | METACYNORTA, gen. nov. |
| $b^3$. Tarsus i. with from 6–8 segments. | |
| $a^4$. Tarsus i. with 6 segments, 1–3 slightly enlarged (♂). | |
| $a^5$. Legs iii. and iv. not markedly stouter than i. and ii. . . . . | CYNORTA, C. L. Koch. |
| $b^5$. Legs iii. and iv. markedly stouter than i. and ii. | ERGINUS, Simon. |
| $b^4$. Tarsus i. with 7 or 8 segments. | |
| $a^6$. Tarsus i. with 7 segments, 1–4 slightly enlarged (♂) . . . . . | METERGINUS, gen. nov. |
| $b^6$. Tarsus i. with 8 segments, 1–5 slightly enlarged (♂) . . . . . | PŒCILÆMA, C. L. Koch. |
| $b^2$. Basal segments of tarsus i. very markedly dilate. | |
| $a^7$. Tarsus i. with 6 or 7 segments. | |
| $a^8$. Tarsus i. with 6 segments, 1 and 2 or 1–3 dilate (♂). | |
| $a^9$. Segments 1 and 2 of tarsus i. dilate . . . . | [RHAUCUS, Simon.] |
| $b^9$. Segments 1–3 of tarsus i. dilate . . . . . | [METARHAUCUS, gen. nov.] |
| $b^8$. Tarsus i. with 7 segments, 1–4 dilate . . . . . | [PARARHAUCUS, gen. nov.] |
| $b^7$. Tarsus i. with 5 segments, 1 and 2 dilate . . . . | [NEORHAUCUS, gen. nov.] |
| $b^1$. Tarsus i. with 10 segments . . . . . | [COSMETUS, Perty (nec Simon).] |

NOTE.—The types of *Metarhaucus*, *Pararhaucus*, and *Neorhaucus* are from South America. A short description of each is added below for the sake of comparison.

## PARAVONONES, gen. nov.

Type *P. biserratus*, sp. n. Mexico.

The species here included under *Paravonones* are very like *Vonones*, Simon. This genus, however, founded upon a female, has seven segments in tarsus iii., whereas all the forms described below have but six segments. The number of tarsal segments stands thus:—i. 5, 1 and 2 subequal, dilate in ♂; ii. 8–10;

iii. 6; iv. 7. Eye-tumulus, viewed transversely, twice as long as broad. Segment 3 of dorsal scutum with a pair of short cusps. Coxa and trochanter of leg iv. with an apical spur. Femur iv. armed apically with denticles of various sizes and disposition, also protarsus iv. in some cases. Body and legs more or less covered with minute tubercles. Dorsal scutum much dilate laterally, forming an almost circular plate, segments 4 and 5 being, however, in some species more elongated.

In the ♂ of certain species, *P. quadratus*, *P. biserratus*, and *P. claviger*, the first and second ventral opisthosomatic segments are much longer than the distance between the spiracles; but in *P. compressus* and *P. incrassatus* they are equal. Mandibles not enlarged. Palpi similar in general character to those of the allied genera.

Five species occur in the collection which may be distinguished as follows:—

*Males.*

A. Protarsus iv. with a series of separate specialized denticles on the inner side.
  *a*. Femur iv. with a series of denticles on each side in the apical third. Protarsus iv. without a larger, more conspicuous, spur at the apex . . *biserratus*, sp. n.
  *b*. Femur iv. without a series of denticles in the apical third. Protarsus iv. with a larger, more conspicuous, denticle or spur at the apex . . . . *quadratus*, sp. n.
B. Protarsus iv. without separate specilized denticles.
  $a^1$. Femur iv. geniculate and enlarged at the apex, set with dentiform tubercles . . . . . *claviger*, sp. n.
  $b^1$. Femur iv. incrassate, but not geniculate and enlarged at the apex.
    $a^2$. Femur iv. flattened or compressed beneath, concave . . . . . *compressus*, sp. n.
    $b^2$. Femur iv. not compressed and concave beneath, simply incrassate throughout and granulose . . . . . *incrassatus*, sp. n.

*Females.*

A. Dorsal scutum without tubercles on segment 4 . . . . . *compressus*.
B. Dorsal scutum with a pair of tubercles on segment 4, as well as a pair of very minute ones on segment 3 . . . . . *incrassatus*.

### 1. **Paravonones biserratus**, sp. n. (Tab. LII. figg. 1, 1 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length, ♂, 5·5 millim. (excl. mand.); femur iv. 5 millim.

♂. General characters similar to those of *P. quadratus*. Femur iv. is not, however, so strongly curved, and presents on the inner side a series of small tubercles starting from the base, becoming longer in the apical third, forming a double row of short denticles; the outer side is similarly curved, but the terminal denticles form a single series only. Protarsus iv. on the inner side with a row of widely separate denticles, but without the larger apical denticle characteristic of the above-named species. The tergal third segment has a pair of low tubercles only. Tarsal segments, i. 5, 1 and 2 dilate; ii. 9; iii. 6; iv. 7.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

Two males.

### 2. **Paravonones quadratus**, sp. n. (Tab. LII. figg. 2, 2 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 8 millim. (excl. mand.); femur iv. 6·5 millim.

♂. Eye-tumulus low, transverse-oval, scarcely twice as broad as long, sometimes plain, sometimes with warts, but without spines. Whole body smooth, without warts. Tergal scutum with even less indication of

the segmental grooves than in *Erginus*; segment 3 with two sharp spines transversely situated in the middle. Tarsi i. and ii. with one claw; iii. and iv. with two claws. Tarsal segments, i. 5, 1 and 2 dilate, elongate, subequal; ii. 9; iii. 6; iv. 7. Pedipalp similar in general structure to that of *Erginus*, the tibia not quite so much dilate laterally, and straight on the inner side. Basal segment of mandibles furnished with warts; chela not so dilate basally as in *Erginus*, the movable digit being without teeth on the inner side; the fixed digit with a thin cutting-carina.

Legs generally similar to those of *Erginus*, furnished with minute tubercles; coxa iv. is, however, more elongate and much more dilate, laterally, forming an abrupt constriction where it joins coxa iii. The sheath of the penis is also much longer than the width between the spiracles, being about equal to it in *Erginus*. [In the ♀ of the allied species the sheath of the ovipositor does not present the great length of the sheath of the penis of the ♂, but the other general characters are similar in the two sexes.] Coxa iv. has a short apical spur, meeting another on trochanter iv., but these are purely specific characters. Femur iv. is strongly curved, dorsally, furnished with minute tubercles, but without long denticles [the apex is dilate in some species of the genus, and in others protarsus iv. is dentate on the inner side]; patella iv. dilate; protarsus iv. bearing a series of short, widely separate (8–10) denticles, which are irregular, however, in position, the apical tooth being larger and directed backwards. [In *Erginus* the tergal scutum is laterally dilate in the middle only; in *Vonones* the dilatation extends almost throughout its length.]

*Colour*. Body and legs deep umber-brown, with a circular, yellow filigree blotch behind the eye-tumulus, a small central and a lateral marginal spot on segments 1 and 2, and a central posterior marginal yellow line on segment 3 of the dorsal scutum.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

### 3. **Paravonones claviger,** sp. n. (Tab. LII. figg. 3, 3 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim. (excl. mand.); femur iv. 3·25 millim.

♂. General characters similar to those of *P. quadratus*. Trochanter iv. without a spur to meet that at the apex of the coxa. Femur iv. abruptly geniculate and dilate at the tip, bearing a prominence on the inner side, which has a triplet of denticles at its apex; beneath, on each side, is a short series of small denticles, between which the patella falls when the leg is closed. Protarsus iv. plain, without denticles. The tergal third segment presents a pair of short spines. Tarsal segments, i. 5, 1 and 2 dilate; ii. 10; iii. 6; iv. 7.

*Colour*. Body and legs deep umber-brown, with a minute posterior central and marginal yellow dot on segments 1, 2, and 3 of the dorsal scutum.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 4. **Paravonones compressus,** sp. n. (Tab. LII. figg. 4, 4 *a*, *b*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ & ♀, 4 millim.; femur iv., ♂, 2·5 millim.

♂. General characters similar to those of others of the genus. Eye-tumulus one-half longer than broad, with a pair of yellow warts above. Dorsal scutum with the five segments each marked by a pair of small yellow tubercles, those on 5 more numerous. The four free opisthosomatic segments have each a series of yellow warts. Coxa iv. with a small apical spur above; trochanter iv. with a curved spur below. Femur iv. strongly compressed on the underside, excavate, the posterior margin bearing a few widely separate tubercles. Tarsal segments, i. 5, 1 and 2 dilate, 1 slightly longer; ii. 8; iii. 6; iv. 7. Posterior margin of femur of palpus plain, anterior margin armed with cusps. Basal segment of mandibles with cusps behind and a few also in front.

*Colour*. Body ochre-brown, with the pairs of yellow warts mentioned above and the rows of seven or eight on the 5th–9th segments, and also a thin yellow line on each side, broken at the junction of the prosoma and opisthosoma, then continuous as far as the fifth segment, throwing out a lateral branch at the second segment to the margin. Legs brown, suffused with black reticulations; the protarsi annulated with dull white rings.

♀. Similar to the ♂ in general characters, differing only in having femur iv. simple in form, not compressed.

*Hab.* Guatemala, Cahabon (*Sarg*); Costa Rica (*Sarg*).

### 5. **Paravonones incrassatus,** sp. n. (Tab. LII. figg. 5, 5 *a*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ & ♀, 4 millim.; femur iv., ♂, 3 millim.

♂. General characters similar to those of *P. compressus*. Eye-tumulus twice as long as broad, with a few minute warts. The dorsal scutum has a pair of short sharp cusps, their points directed backwards on segments 3 and 4. The four opisthosomatic segments are studded with minute warts dorsally, and the legs are also covered with minute warts, especially iii. and iv. Femur of palpus without denticles on the upper margin, but with the usual ones below. Trochanter iv. with only a minute spur below. Femur iv. cylindrical, not compressed, incrassate, covered with numerous small tubercles, especially noticeable along the outer margin. Tarsal segments, i. 5, 1 and 2 dilate, 2 slightly longer than 1; ii. 10; iii. 6; iv. 7. Basal segment of mandible with a few warts above.

*Colour*. Body olive-green, legs brown, the tarsi paler. Dorsal scutum margined with pale ochre, the eye-tumulus being situated in an ochre blotch; a white spot lies on each side, on the prosomatic groove, and the five dorsal segments are marked by thin transverse yellow-white lines.

♀. Similar to the ♂ in general appearance, but with the tarsal segments of the first leg not dilate, nor are the femora of the fourth pair incrassate.

*Hab.* MEXICO, Teapa (*H. H. Smith*).

## METAVONONES, gen. nov.

Type *M. hispidus*, sp. n. Mexico.

General characters similar to those of the examples which I identify as *Vonones*; but there are six segments in tarsus i. Eye-tumulus scarcely longer than broad. The whole body, dorsally, and legs covered with minute tubercles. Dorsal scutum evenly dilate laterally, the fifth segment scarcely prolonged. Leg iv. enlarged, but without special denticles. Coxa and trochanter iv. with an apical spur. Mandibles not dilate, basal segment covered with minute tubercles. Tarsal segments, i. 6, 1–3 short, subequal, slightly dilate; ii. 10; iii. 6; iv. 6. The length of the first and second ventral opisthosomatic segments is much greater than the width between the spiracles—a character, however, peculiar to the male sex.

### 1. **Metavonones hispidus,** sp. n. (Tab. LII. figg. 6, 6 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.; femur iv. 4 millim; protarsus ii. 3·5 millim.

The structural characters appear in the generic diagnosis. Dorsal scutum almost circular.

*Colour*. Body and legs umber-brown, without pale markings or lines.

*Hab.* MEXICO, Amula in Guerrero (*H. H. Smith*).

## ERGINOIDES, gen. nov.

Type *E. tarsalis*, sp. n. Costa Rica.

The single species described below differs from any of those included in the genera *Erginus* and *Metarhaucus* owing to the incrassation of the tarsi of legs iii. and iv. The pseudo-segment at the apex of protarsus iv. is more evident than in the above-mentioned genera, but this character is more or less common to them all. The terminal segment of tarsus iv., as well as that of iii., is more remarkably distinct, being quadrate, viewed in profile; the terminal process is very stout, while the pair of tarsal claws are much smaller, their apices not extending beyond the tip of this process. The first three segments of tarsus i. are proportionately more dilate than in *Erginus*, resembling those of *Metarhaucus*; but tarsi iii. and iv. have only six segments in the present species.

Otherwise the general characters are much the same, the eye-tumulus being about one-third longer, transversely, than broad. The length of the first two opisthosomatic ventral segments about equals the distance which separates the spiracles.

### 1. **Erginoides tarsalis,** sp. n. (Tab. LII. figg. 7, 7 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim. (excl. mand.); femur iv. 5 millim.

General characters as in *Erginus pectinigerus*. Eye-tumulus more distinctly raised, only slightly longer than broad. Dorsal scutum without conical spines, its broadest point lying before the middle. Femur of palpus with a dorsal basal row of cusps and also the usual ventral series common to the Cosmetidæ. Mandible smooth, not much enlarged; digits short and stout, half as long as the basal portion. Tarsal segments, i. 6, the three basals dilate (but more markedly than in *Erginus*), 2 and 3 subequal, 1 slightly longer; ii. 12–14; iii. 6; iv. 6. The tarsal segments of iii. and iv. are enlarged, especially those of iv., 1 being the longest in each, and 2 and 3 subequal, the terminal segment, viewed in profile, almost quadrate, the terminal process being very stout, especially in iv., while the tarsal claws are very small. All the legs are covered with minute cusp-like tubercles, those on iv. being more developed. Femur iv. simple, without series of denticles. Coxa iv. enlarged as in *Erginus*, with a small apical spur above; trochanter iv. without spurs.

*Colour*. Body brown, suffused with black. Prosoma with a small yellow filagree spot on each side, united by a yellow line, following the groove uniting the prosoma with the opisthosoma. The latter with a faint, broken, central, dorsal, yellow line, uniting with a fine curved yellow line on each side on the posterior margin of the third segment. Legs olive-brown.

*Hab.* Costa Rica (*Sarg*).

## METACYNORTA, gen. nov.

Type *M. gracilipes*, sp. n. Guatemala.

General characters as in *Cynorta*, but the tarsus of leg i. has five segments, instead of six, the first two being slightly enlarged in the ♂. Dorsal scutum with two minute tubercles on the first segment and a pair of rather larger ones on the third. The margin of the fifth segment and that of the four free segments set with minute tubercles, the fourth being also studded with minute tubercles on its disc. Eye-tumulus about one-third longer, transversely, than broad. Legs very slender, subequal, iii. and iv. scarcely stouter. Palpi and mandibles similar in structure to those of *Cynorta*. Tarsal segments, i. 5; ii. 9; iii. 7; iv. 7.

### 1. **Metacynorta gracilipes,** sp. n. (Tab. LII. fig. 8, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4 millim.; femur iv. 8 millim.

General characters as in *Cynorta longipes*, the chief difference between them being in the number of the segments of tarsus i. For structural characters, see under the generic diagnosis.

*Colour*. Body olive-brown, legs paler. Dorsal scutum with the prosomatic groove, the central line, and the third segmental groove lined in yellow-white, with also a reticulated spot and some other scattered spots on the margins of the prosomatic groove. Tarsal segments, i. 5, 1 and 2 dilate, elongate, equal; ii. 9; iii. 7; iv. 7. Femur iv. quite simple.

*Hab.* Guatemala (*Sarg*).

## CYNORTA.

*Cynorta,* C. L. Koch, Uebersicht des Arachn. p. 20 (1839).

Type *C. conspersa*, C. L. Koch.

Of the species which remains as the type of the genus, Koch says that the first three segments of tarsus i. are incrassate, and, judging from the figure of *C. conspersa*, there is no reason to doubt that the forms here referred to this group have been correctly allocated. They are also, so far as one can judge, congeneric with those which Simon refers to *Cynorta*.

Koch does not state how many segments there are in tarsus i.; but there are, it appears to me, always three terminal segments which retain their normal construction, no matter how many of the basals are dilate,

so that it has here been assumed that there are six segments in tarsus i. The chief difference between *Cynorta* and *Erginus* lies in the much more slender build and more slender legs in the former, while the third and fourth pairs of legs are not appreciably stouter than those of the first and second.

The forms included under this genus will probably be subsequently split up into smaller groups, based primarily upon the varying number of tarsal segments. Nine species are here recognized in the collection, which may be distinguished as follows:—

*Males.*

A. Tarsus iii. with 7 segments; iv. with 8 or 9.
  *a*. Tarsus ii. with 11 segments; the free opisthosomatic segments each studded, dorsally, with a row of white spots . . . . . *albipunctata*, sp. n.
  *b*. Tarsus ii. with 13–14 segments; the free opisthosomatic segments unicolorous, dorsally.
    $a^1$. Tarsus ii. with 13 segments. Leg ii. much longer in proportion to the body; femur ii. one-half longer than the body . . . . . *bipunctata*, sp. n.
    $b^1$. Tarsus ii. with 14 segments. Leg ii. much shorter in proportion to the body; femur ii. not longer than the body . . . . . *biguttata*, sp. n.

B. Tarsus iii. with 8 segments.
  $a^2$. Tarsus iv. with 8 segments.
    $a^3$. Legs shorter and less slender; femur iv. less than the body in length. Tarsus ii. with 10 segments . . . . . *bituberculata*, sp. n.
    $b^3$. Legs much longer and more slender; femur iv. more than twice as long as the body. Tarsus ii. with 13 segments . . . . . *longipes*, sp. n.
  $b^2$. Tarsus iv. with 9 segments.
    $a^4$. Femur iv. simple, without apical denticles. Spines on the third segment of the dorsal scutum much longer . . . . . *longispina*, sp. n.
    $b^4$. Femur iv. with either a single inner apical tooth or several denticles on each side, apically.
      $a^5$. Femur iv. with a single inner apical tooth, its apex directed backwards. Tarsus ii. with 12 segments; spines on the third segment of the dorsal scutum short, but stout . . . . . *dentipes*, sp. n.
      $b^5$. Femur iv. with three or more outer apical denticles and two inner apical denticles. Tarsus ii. with 13 segments; spines on the third segment of the dorsal scutum almost obsolete . *annulipes*, sp. n.

*Females.*

A. Tarsus iii. with 10 segments; iv. with 12. Femur iv. more than twice as long as the body . . . . . *conigera*, sp. n.

B. Tarsus iii. with 7 or 8 segments; iv. with 8. Femur iv. not or scarcely longer than the body.
  *a*. Tarsus iii. with 7 segments.
    $a^1$. Dorsal scutum with a pair of rudimentary cusps on the third segment.

$a^2$. The four free opisthosomatic segments without rows of white spots, dorsally.
$a^3$. Legs unicolorous, not annulate . . . . . *bipunctata.*
$b^3$. Legs more or less annulated with black . . . . . *bituberculata.*
$b^2$. The four free opisthosomatic segments with rows of white spots dorsally . . . . . *albipunctata.*
$b^1$. Dorsal scutum without even the rudimentary vestige of cusps on the third segment . . . . . *annulipes.*
*b*. Tarsus iii. with 8 segments . . . . . *dentipes.*

Note.—One must not attach too much importance to the number of tarsal segments on leg ii., because these are often very difficult to distinguish. The number of segments in legs iii. and iv. is by no means constant in both sexes of a species; and possibly, even in the same sex, individuals may occur in which the number is not constant in the case of these legs. This, however, does not nullify the value of these characters: we have merely to recognize individual variation from characters which are otherwise in the majority of examples constant. So far as the material at hand enables me to judge, the segments of tarsus i. are constant in both sexes.

### 1. **Cynorta albipunctata,** sp. n. (Tab. LII. figg. 9, 9 *a*, *b*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 4 millim. (excl. mand.); femur iv., ♂, 5 millim.

♂. Legs, unlike those of *Erginus*, subsimilar, the third and fourth pairs not markedly larger, nor are the femora of the fourth pair much specialized. The spines on the tergal third segment are very small, mere tubercles, often obsolete. Tarsal segments, i. 6, 1–3 somewhat dilate; ii. 11; iii. 7; iv. 8. Legs covered with minute tubercles; coxa iv. with a blunt apical spur; trochanter iv. without spurs; femur iv. almost straight, slender, with two series of more conspicuous, but still very small, tubercles beneath; tibia iv. with a similar double series, and protarsus iv. with a single series, of similar tubercles beneath. Eye-tumulus one-third longer, transversely, than broad.

♀. Similar to the ♂, except that the fourth pair of legs is similar to the rest and the segments of tarsus i. are not dilate.

*Colour.* Body and legs very pale olive-green, the latter not annulate, their apices and the underside more or less suffused with black. Behind the eye-tumulus, and embracing it, lies a triangular black blotch outlined behind and laterally with a fine yellow line; the first, second, and third segments of the dorsal scutum are outlined marginally, the third also posteriorly, with fine yellow lines, enclosing in a scalloped pattern three black blotches on each side. Between these and the lateral margins are some irregular filigree yellow lines; the fourth and fifth segments, as well as the free segments, are studded each with a transverse row of yellow dots. There is also a central series of a few dots, besides a sublateral dot on each, on segments 1, 2, and 3 of the dorsal scutum. A short yellow line runs also from the apex of the lateral scallop of segment 3 to the margin.

*Hab.* Costa Rica (*Sarg*).

### 2. **Cynorta bipunctata,** sp. n. (Tab. LII. figg. 10, 10 *a*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ & ♀, 5 millim. (excl. mand.); protarsus ii. 6·5 millim.; femur ii. 6 millim.

General characters as in the allied species, except that the legs are stouter and the eyes wider apart, the eye-tumulus being about twice as long as broad. Segment 3 of the dorsal scutum with a pair of short, stout, coniform cusps. Tarsal segments, i. 6, 1–3 dilate; ii. 13; iii. 7; iv. 8. Femur iv. plain, without denticles, and with only very minute spicules or cusps. Body entirely smooth. Coxa and trochanter iv. with slight apical spurs.

*Colour*. Body deep brown above, underside and legs ochre-brown; the latter not annulate. The dorsal scutum bears a large, reticulated, yellow blotch on each side at the junction of the prosoma and opisthosoma; there is also a broken central opisthosomatic line, the third and fourth segments being slightly (not completely) outlined in yellow.

♀. Similar to the male, but without the dilated segments in tarsus i.

*Hab.* Costa Rica (*Sarg*).

### 3. **Cynorta biguttata,** sp. n. (Tab. LII. figg. 11, 11 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim. (excl. mand.); protarsus ii. 4 millim.; femora, ii. 5, iv. 4·5 millim.

Generally similar to *C. bipunctata*, but with the legs much shorter and stouter in proportion. Tarsal segments, i. 6, 1–3 dilate; ii. 14; iii. 7; iv. 8. Eye-tumulus about one-half longer than broad. Segment 3 of the dorsal scutum with a pair of short, coniform spines, their apices curving backwards. The whole body smooth, the legs, especially iii. and iv., exhibiting the usual spicules. Femur iv. bearing no special denticles.

*Colour*. Body olive-brown, with a pair of yellow blotches on each side at the junction of the prosoma with the opisthosoma. The central line and the groove between the third and fourth segments are slightly indicated with yellow. Legs olive-brown, not annulate.

*Hab.* Costa Rica (*Sarg*).

### 4. **Cynorta bituberculata,** sp. n. (Tab. LII. figg. 12, 12 *a*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ & ♀, 5 millim. (excl. mand.); femur iv., ♂, 5 millim.

♂. Similar in general character to that of *C. annulipes*, but the femur of leg iv. bears no denticles towards the apex beneath, and there are two small tubercles on the tergal third segment. The eye-tumulus, as in the allied species, is about twice as long as broad. The legs, as in *C. annulipes*, are annulated with black. Tarsal segments, i. 6, 1–3 dilate; ii. 10; iii. 8; iv. 8.

♀. Similar to ♂, except that the three basal segments of tarsus i. are not dilate.

*Colour*. Body deep ochre-brown; legs yellow, the segments, especially the tibiæ and protarsi, spotted or annulated with black. Dorsal scutum very similar to that of *C. albipunctata*, but there is no outlined triangular blotch behind the eye-tumulus, and no transverse rows of yellow dots on the fourth and fifth segment, or on the free segments.

*Hab.* Guatemala, San Juan Chamelco, Petet, Cahabon (*Sarg*).

### 5. **Cynorta longipes,** sp. n. (Tab. LII. figg. 13, 13 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim. (excl. mand.); femur iv. 13 millim.

General characters similar to those of the other species of the genus, except that the posterior legs are very much longer. Eye-tumulus about one-half longer than broad, with one or two minute warts. The first segment of the dorsal scutum bears a pair of very minute, widely separate, pale warts, the third a pair of more conspicuous and less widely separate warts. The whole body is smooth, except that the four free opisthosomatic segments bear warts, dorsally. Tarsal segments, i. 6, the first three dilate, 1 slightly longer than 2 and 3, which are subequal; ii. 13; iii. 8; iv. 8. Legs very slender, with scattered very minute warts; iii. and iv. not much more robust than i. and ii. Femur iv. with a row of minute denticles on each side beneath in the apical eighth section.

*Colour*. Body olive-brown, the central line and the segments of the dorsal scutum indicated by yellow outlines and lateral reticulations. The free segments with a row of yellow spots on each, above. Legs pale yellow-brown, not annulated.

*Hab.* Costa Rica (*Sarg*).

### 6. **Cynorta longispina,** sp. n. (Tab. LII. figg. 14, 14 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim. (excl. mand.); femur iv. 7 millim.

General characters similar to those of the allied species. The spines on segment 3 of the dorsal scutum are, comparatively speaking, very long, while segment 1 has a pair of white warts. Femur iv. armed only with rows of spicules or cusps, more noticeable towards the apex and on the underside. Tarsal segments, i. 6, 2 and 3 dilate; ii. 12?; iii. 8; iv. 9.

*Colour*. Body and legs ochre-brown, the latter faintly annulate with darker brown. The dorsal scutum is richly reticulated with yellow (see Plate), the free segments, however, being plain, without yellow spots.

*Hab.* Costa Rica (*Sarg*).

### 7. **Cynorta dentipes,** sp. n. (Tab. LII. figg. 15, 15 *a*, *b*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ & ♀, 5 millim. (excl. mand.); femur iv., ♂, 5·75 millim.

General characters similar to those of *C. longipes*, except that the legs are much shorter. The eye-tumulus is about one-half longer than broad; and segment 3 of the dorsal scutum bears a pair of stout coniform spines. The body is smooth, except the dorsal aspect of the free segments, which, as usual, bear tubercles. The legs are moderately slender, the femora of all, and tibiæ of iii. and iv., bearing minute cusps. Femur iv., which is slender, bears two small denticles at the apex beneath, and a conspicuous larger denticle on the inner side towards the apex, its point directed backwards towards the base of the segment. Trochanter iv. bears a stout spur on the inner apical margin. Tarsal segments, i. 6, 1–3 dilate, 1 being slightly longer, 2 and 3 subequal; ii. 12; iii. 8; iv. 9.

*Colour*. Body orange-ochre, with sooty-black mottlings, the underside being chiefly black. The dorsal scutum is covered with minute yellow spots, chiefly on the margins, while the segments are delicately outlined with small yellow spots. The legs are yellow with black annulations, most noticeable on femur iv. and on the tibiæ and protarsi of all the legs.

♀. Similar to the ♂, but with the tarsal segments of leg i. not dilated, and the denticles on femur iv. absent.

*Hab.* Guatemala, Quirigua (*Sarg*); Costa Rica (*Sarg*).

### 8. **Cynorta annulipes,** sp. n. (Tab. LII. figg. 16, 16 *a*, *b*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ & ♀, 5 millim. (excl. mand.); femur iv., ♂, 6 millim.

♂. Similar in general character to that of *C. albipunctata*, but with the legs yellow, very distinctly annulated with black, and femur iv. with 3 or 4 conspicuous separate denticles in the apical fourth beneath. There are no spines or tubercles on the tergal third segment. Tarsal segments, i. 6, 1–3 dilate; ii. 12–13; iii. 8; iv. 9.

♀. Similar to the ♂, except that the denticles beneath femur iv. are absent, and the first 3 segments of tarsus i. are not dilate.

*Colour*. Body reddish-ochre; legs yellow, all the segments, except the tarsi, spotted and annulated with black. Dorsal scutum with an outlined scallop-pattern, and an enclosed triangular space behind the eye-tumulus very similar to that of *C. albipunctata*, but much less pronounced, and the transverse rows of spots are entirely absent, as well as those on the disc of the dorsal scutum.

*Hab.* Guatemala, Cahabon (*Sarg*).

### 9. **Cynorta conigera,** sp. n. (Tab. LII. fig. 17, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 5 millim. (excl. mand.); protarsus ii. 14 millim.; femora, ii. 10·5, iv. 10 millim.

General characters similar to those of *C. longipes*. The third segment of the dorsal scutum bears a pair of very stout coniform spines, the bases of the cones themselves bearing spicules. Tarsal segments, i. 6; ii. 14; iii. 10; iv. 12.

*Colour*. Legs olive-brown, annulated with yellow; the annulation being most noticeable on the femora and protarsi. Dorsal scutum with a broad reticulated band of greenish yellow, the groove marking the junction of the prosoma and opisthosoma being also marked with yellow.

*Hab.* Costa Rica (*Sarg*).

## ERGINUS, Simon.

*Erginus,* E. Simon, Ann. Soc. Ent. Belg. xxii. p. 200 (1879).

Type *E. devillei*, Simon (the first species described). Ecuador.

So far as one can judge from the descriptions of the various species included by Simon under *Erginus*, they are congeneric with the forms now added. The number of segments in tarsus i. agree, and the third and fourth pairs of legs are distinctly stouter than the first and second. The eye-tumulus, seen transversely, in *Erginus* is at least twice, often three times, as long as its breadth; in *Cynorta* it is not more than one-third longer.

The species, evidently very numerous in Central and South America, which occur in the collection before me may be recognized as follows:—

*Males.*

A. Tarsus iii. with 7 segments.
  *a*. Tarsus iv. with 7 or 8 segments.
    $a^1$. Tarsus iv. with 7 segments . . . . . *serratifer,* sp. n.
    $b^1$. Tarsus iv. with 8 segments.
      $a^2$. Patella and tibia iv. (but not the femora) armed marginally with specialized denticles.
        $a^3$. Tibia iv. not more than one-fourth longer than patella iv., and much dilated . . . . . *clavo-tibialis,* sp. n.
        $b^3$. Tibia iv. at least twice as long as patella iv., scarcely dilated.
          $a^4$. Tibia iv. armed on both sides, from the base almost to the apex, with 12–16 long, basally coalescent denticles . *serrato-tibialis,* sp. n.
          $b^4$. Tibia iv. armed, on the inner side only, with a double series of short separate denticles . . . . . *cylindro-tibialis,* sp. n.
      $b^2$. Femur iv. (but not the tibia or patella) armed with specialized denticles or minute tubercles.
        $a^5$. Femur iv. armed, or studded, with more or less regular series of tubercles, but without rows of denticles . . . *arcuatus,* sp. n.

$b^5$. Femur iv. armed with one or more series of specialized denticles.

$a^6$. The series of denticles extending to the base of femur iv.

$a^7$. Femur iv. armed with an inner inferior series of about 10–15 short denticles, which are not longer than the width of the segment, and also with an external series of 4 short denticles in the apical third or of 12 short denticles in the basal two thirds. Size smaller, length 5 millim.

$a^8$. The inferior series of denticles sinuous. The external series of about 12 denticles occupying the basal two thirds . . . . . *sinuosus*, sp. n.

$b^8$. The inferior series of denticles straight. The external series of 4 denticles occupying the apical third . . . . . *simplicipes*, sp. n.

$b^7$. Femur iv. armed with an outer inferior series of about 14 short coalescent denticles, which are not longer than the width of the segment, and also with a short inner inferior series of 5 separate denticles on the basal third. Size larger, length 7 millim. . . . . *subserialis*, sp. n.

$b^6$. The series of denticles confined to the apical half; two series of 10–11 . . . . . *cristatus*, sp. n.

*b*. Tarsus iv. with 9 segments . . . . . *crassescens*, sp. n.

B. Tarsus iii. with 8 segments.

$a^9$. Tarsus iv. with 8 segments. Femur iv. with a dorsal series, but without an external lateral series of denticles. The inferior series straight . . . . . *serratipes*, sp. n.

$b^9$. Tarsus iv. with 9 segments.

$a^{10}$. Eyes nearer together; eye-tumulus not more than one-third longer, transversely, than broad. Femur iv. with a series of very fine denticles on each side in the apical third (or half) . *triangularis*, sp. n.

$b^{10}$. Eyes wider apart; eye-tumulus at least twice, often three times, longer, transversely, than broad. Femur iv. with one or more series of long denticles, not confined to the apical third.

$a^{11}$. Femur iv. with three series of long denticles confined to the middle of the segment . . . . . *tricristatus*, sp. n.

$b^{11}$. Femur iv. with one or more series of long denticles not confined to the middle of the segment.

$a^{12}$. Femur iv. with a single inferior series of long denticles, and a dorsal irregular series of blunt tubercles . . . . *clavipes*, sp. n.

$b^{12}$. Femur iv. with two or three series of long denticles, the dorsal series also consisting of denticles.

$a^{13}$. Femur iv. with two series, a dorsal and an inferior, of comparatively short denticles. No external basal series.
  $a^{14}$. The inferior series of denticles on femur iv. subequal in length throughout; the basal denticle erect and set out of the plane of the rest of the series . . . . *erectispinus*, sp. n.
  $b^{14}$. The inferior series of denticles on femur iv. becoming much longer from the middle towards the apex; the basal denticle quite small and normally situated . . *rectus*, sp. n.
$b^{13}$. Femur iv. with three series of very long denticles, those of the inferior series as long as three times the width of the segment; also with a short external basal series of four long denticles . . . . . *pectinigerus*, sp. n.

*Females.*

A. Tarsus iii. with 7 segments.
  *a*. Third segment of dorsal scutum with a pair of rudimentary tubercles only. Coxa iv. with a double tubercle at its base, just behind the trochanter iii. Size much longer, length 9 millim. . . . . *serrato-tibialis*.
  *b*. Third segment of dorsal scutum with a pair of sharp spines. Coxa iv. without tubercles as above. Size much smaller, length 5 millim.
    $a^1$. Femur iv. longer (5 millim.), and scarcely arcuate in the basal half . . . . . *simplicipes*.
    $b^1$. Femur iv. shorter (4 millim.), more strongly arcuate in the basal half . . . . . *sinuosus*.
B. Tarsus iii. with 8 segments.
  $a^2$. Tarsus iv. with 8 segments . . . . . *serratipes*.
  $b^2$. Tarsus iv. with 9 segments.
    $a^3$. Size much larger, length 9 millim. Third segment of dorsal scutum entirely devoid of spines or tubercles. Femur iv. arcuate in the basal half . . . . . *pectinigerus*.
    $b^3$. Size much smaller, length 5 millim. Third segment of dorsal scutum with a pair of long stout spines. Femur iv. straight throughout . . . . . *erectispinus*.

### 1. **Erginus serratifer,** sp. n. (Tab. LII. fig. 18, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim. (excl. mand.); femur iv. 3·25 millim.

♂. General characters similar to those of *E. pectinigerus*. The two spines on the tergal third segment are short. Tarsal segments, i. 6; ii. 13; iii. 7; iv. 7. Trochanters iii. and iv. and coxa iv. with an apical tooth. Basal segment of mandible granulose and in other respects similar to that of *E. erectispinus*. Femur iv. with an internal inferior series of 18 long denticles, basally coalescent, the longest more than twice the width of the segment, extending from the base, but not quite reaching the apex, and an external, dorsal, basal series of 5 or 6 shorter denticles occupying the basal third, besides two inferior series of small tubercles extending from the base, but not quite reaching the apex, those of the

inner row being the larger; also a few scattered tubercles on the apical dorsal half. Tibiæ iii. with a row of denticles beneath; iv. with a series of minute setigerous tubercles.

*Colour*. Body and legs entirely dull olive-brown, unicolorous.

*Hab.* GUATEMALA, Coban, Cubilguitz (*Sarg*).

### 2. **Erginus clavo-tibialis,** sp. n. (Tab. LII. figg. 19, 19 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim. (excl. mand.); femur iv. and patella+tibia iv. 4 millim.

♂. Similar in general characters to *E. serrato-tibialis*, but without tubercles at the base of coxa iv.; a spur present on trochanter iv. Femur iv. with rows of tubercles, but without denticles. Patella iv. dilate, with tubercles and three longer tuberculiform denticles on the inner dorsal side. Tibia iv. very short, only slightly longer than patella iv., very much dilate on each side, with 5 conspicuous denticles on the outer side towards the base and 5 on the inner side towards the apex; with also a central dorsal series of 6 or 7 tubercles, besides others indefinitely arranged; beneath are two rows of tubercles. Protarsus iv. bearing a series of minute separate denticles on the inner side, extending throughout its entire length.

*Colour*. Body and legs reddish-ochre-brown, the protarsi and tarsi paler. Dorsal scutum and free segments entirely dotted over with scattered yellow spots, the third segment being outlined posteriorly with a fine yellow line. The lateral margins of the prosoma and dorsal scutum are marked with irregular filigreed spots of yellow.

*Hab.* MEXICO, Atoyac in Vera Cruz (*Sarg*).

### 3. **Erginus serrato-tibialis.** sp. n. (Tab. LII. figg. 20, 20 *a*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ & ♀, 9 millim. (excl. mand.); femur iv. 5·25, patella+tibia iv. 5·5 millim.

♂. Similar in general characters to *E. pectinigerus*. The two spines on the tergal third segment are short. Tarsal segments, i. 6; ii. 9 or 10; iii. 7; iv. 8. Basal segment of mandible with marginal warts. Femur iv. with several series of minute tubercles, but without denticles. Patella iv. with an inner dorsal series of three longer and two shorter denticles, besides numerous small tubercles above. Tibia iv. with 16 basally coalescent subequal denticles on the outer side and 13 on the inner, the longest being about the width of the segment, and the apical denticle of the inner series being separate and recurved; besides a dorsal and an inner-dorsal series of tubercles, those of the first series being longer at the base and gradually diminishing in size until they become obsolete towards the apex. Protarsus iv. without small separate denticles on the inner side. Coxa iv. with a pair of tubercles at its base close to trochanter iii.

♀. Similar in structure and colour to the ♂, except in the development of the tibia and patella iv.

*Colour*. Body and legs very similar to those of the preceding species, except that the upperside is much darker, and the underside by comparison paler. The yellow filigreed blotches and dots are more distinct in the female, and possibly this varies very much with individuals.

*Hab.* MEXICO, Teapa (*H. H. Smith*); GUATEMALA, Tikal, Cahabon, Cubilguitz (*Sarg*).

### 4. **Erginus cylindro-tibialis,** sp. n. (Tab. LII. figg. 21, 21 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim. (excl. mand.); femur iv. and patella+tibia iv. 5 millim.

♂. Generally similar to that of *E. serrato-tibialis*, but the denticulation of tibia iv. is different. There are two rows of stout, coniform, separate, adjacent denticles on the inner side, the upper series being on the basal half only, the denticles becoming finer and finally obsolete. Another series of warts appears on the outer side, and the protarsus has a series of widely separate minute tubercles on the inner side.

*Colour*. Body reddish-ochre-brown, the legs paler. A broad band of filigree pattern in yellow runs round the margins of the dorsal scutum, but the disc is almost devoid of yellow spots.

*Hab.* GUATEMÁLA, Quirigua (*Sarg*).

### 5. **Erginus arcuatus,** sp. n. (Tab. LII. figg. 22, 22 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 4 millim. (excl. mand.); femur iv. 4 millim.

♂. General characters similar to those of *E. pectinigerus*, but more nearly allied to *E. crassescens*; trochanter iii. and coxa and trochanter iv. without spurs, and femur iv. not dilate towards the apex, but basally dilate and attenuate towards the tip. Tarsal segments, i. 6; ii. 13; iii. 7; iv. 8. Femur iv. basally dilate, gradually attenuate towards the apex, strongly curved, sinuous; without a series of long denticles, but with irregular rows of tubercles.

*Colour*. Body rich ochre-brown, the legs ochre-yellow. Prosoma and opisthosoma divided dorsally by a fine yellow line, with a spot at each lateral terminal. Dorsal scutum with a broken central line, and the third segment outlined posteriorly with a yellow bar.

*Hab.* GUATEMALA, Cubilguitz (*Sarg*).

### 6. **Erginus sinuosus,** sp. n. (Tab. LII. figg. 23, 23 *a*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ & ♀, 5 millim. (excl. mand.).

♂. General characters similar to those of *E. pectinigerus*. The spines on the tergal third segment are moderately long, but not so long as in *E. erectispinus*. Tarsal segments, i. 6; ii. 11–12; iii. 8; iv. 8. Specific characters generally similar to those of the last-named species, except those of femur iv. The latter with an inferior internal sinuous series of 16 denticles, about as long as the width of the segment, those of the whole series being subequal in length, basally coalescent, the apical 3 or 4, however, sometimes separate, extending from the base to near the apex of the segment; with also an external series of 14–15 short dentiform tubercles, extending from the base to the apical third of the segment, and a basal dorsal series of 5 or more low separate tubercles.

*Colour*. Body olive-ochre-brown, the legs paler. Prosoma margined laterally, but not posteriorly, with yellow. Dorsal scutum with a few marginal yellow lines and some central dots; the posterior margin of the first segment indicated by a fine line on each side, broken in the middle, the second segment by a few yellow dots on each side, the third by a fine curved line on each side; the posterior margins of the fourth and fifth barely indicated in yellow.

♀. Similar to the ♂ in structure and colour, except that femur iv. is simple, without denticles.

*Hab.* GUATEMALA, Tamahu (*Sarg*).

### 7. **Erginus simplicipes,** sp. n. (Tab. LIII. figg. 1, 1 *a–c*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ & ♀, 5 millim. (excl. mand.).

♂. General characters similar to those of *E. pectinigerus*. The spines on the tergal third are moderately long, but not so long as in *E. erectispinus*. Tarsal segments, i. 6; ii. 13; iii. 7; iv. 8. Specific characters generally similar to those of the last-named species, except those furnished by femora iv. The latter uniformly cylindrical throughout, with an internal inferior slightly sinuous series of 10–11 separate denticles, not basally coalescent, subequal in length, about as long as the diameter of the segment, extending along the basal two-thirds; also an inferior apical series of 4 denticles, being the apical tubercles of a series lying adjacent to the above-mentioned series, and a dorsal series of numerous tubercles, besides two other rows of tubercles.

*Colour*. Body dull olive-green, the posterior legs paler. Prosoma limited posteriorly by a fine semicircular yellow line. First segment of dorsal scutum having on its disc a short central line and a dot on each side, its posterior margin outlined laterally with yellow. Second segment with a short central line and

a dot on each side on its disc, but not posteriorly margined. Third segment with a central line between the cusps, margined posteriorly with yellow.

♀. Similar in structure and colour to the ♂, but with femur iv. simple, neither dilate nor tuberculate.

*Hab.* GUATEMALA, Chicoyoito, Cubilguitz (*Sarg*).

### 8. **Erginus subserialis,** sp. n. (Tab. LIII. figg. 2, 2 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim. (excl. mand.); femur iv. 4·25 millim.

General characters as in *E. pectinigerus* and *E. sinuosus*. Eye-tumulus without tubercles. Spines on the third tergal segment represented by a pair of warts. Tarsal segments, i. 6, the three basals not dilate; ii. 9; iii. 7; iv. 8. Basal segment of mandible with few external marginal warts; apical segment moderately well-developed. Femur of palpus with a dorsal series of small denticles in the basal two-thirds, and an inferior marginal series as usual in the genus. Segment 5 of the dorsal scutum with a median posterior marginal row of three, the four free segments with median rows of four to six tubercles. Femur iv. short, basally dilate, slightly curved outwards at the base, with three dorsal, as well as an external, series of warts, and an inferior slightly sinuous series of fourteen short (none as long as the diameter of the segment) partially coalescent denticles extending from near the base almost to the apex; with also a short inferior internal series of five, one short and four longer, denticles, forming a short group at the base lying on the inner side of the longer series. Tibia iv. bearing six longitudinal series of warts, and leg iii. also covered with small warts; femur iii. with an inferior series of short denticles.

*Colour*. Body ochre-olive-brown, the legs paler. Prosoma and dorsal scutum margined with a filigreed band in yellow. Disc of the latter dotted with yellow; third, fourth, and fifth segments margined posteriorly with yellow. The four free segments also picked out with yellow, transversely.

*Hab.* GUATEMALA, Tecpan (*Stoll*).

### 9. **Erginus cristatus,** sp. n. (Tab. LIII. figg. 3, 3 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim. (excl. mand.); femur iv. 4·75 millim.

♂. Similar in general character to *E. pectinigerus*. The spines on the tergal third segment are almost obsolete, appearing as small tubercles. Tarsal segments, i. 6; ii. 11; iii. 7; and iv. 8. Femur iv. with series of denticles in the apical half only, where there are two rows of 10 or 11 tuberculiform coalescent denticles on each side beneath, and a dorsal series of 4–6 separate denticles about the middle of the segment. Tibia iv. with a row of 7 separate, short, tuberculiform denticles beneath, besides other rows of smaller tubercles. Femur iii. without denticles. Mandibles similar to those of *E. erectispinus*. Eye-tumulus quite smooth, without tubercles.

*Colour*. Body pale olive-green; legs ochre-yellow, broadly banded with pale olive-green. The various grooves marking the limits of the prosoma and opisthosomatic segments of the dorsal scutum are indicated symmetrically on each side by yellow spots or short lines.

*Hab.* GUATEMALA, Cahabon (*Sarg*), Guatemala city (*Stoll*).

### 10. **Erginus crassescens,** sp. n. (Tab. LIII. figg. 4, 4 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim. (excl. mand.); femur iv. 4 millim.

♂. General characters similar to those of *E. pectinigerus*, and specific ones approaching those of *E. simplicipes*. Tarsal segments, i. 6; ii. 12 or 13; iii. 7; iv. 9. Femur iv. gradually dilate towards the apex, especially on the inner inferior side, claviform (thus differing from both *E. simplicipes* and *E. clavipes*), having an internal inferior sinuous series of 10 long separate denticles, not basally coalescent, extending from near the base almost to the apex, 4 and 5 being the longest, scarcely as long as the diameter of the segment; with an inferior apical series of 5 denticles, being the apical tubercles of a row lying adjacent

to the last-named series (similar in this respect to the two above-named species); with a third inferior external row of tubercles becoming longer towards the apex; also a dorsal external and two dorsal series of distinct separate tubercles; all these rows extending from the base to near the apex of the femur. Trochanter iii. has a longer apical spur than in allied forms, being absent in *E. arcuatus*.

*Colour*. Body very pale grey-olive-green; legs, especially the posteriors, paler. The dorsal scutum is entirely devoid of yellow spots and lines, except that the central posterior margin of the third segment is outlined in yellow, and is sometimes continued to the extreme margin of the body.

*Hab.* GUATEMALA, Cahabon (*Sarg*).

## 11. **Erginus serratipes,** sp. n. (Tab. LIII. figg. 5, 5 *a*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ & ♀, 6 millim. (excl. mand.).

♂. General characters similar to those of *E. pectinigerus*. Tarsal segments, i. 6; ii. 13; iii. 8; iv. 8. Mandible: basal segment granulose; movable digit about half the length of the dilate apical segment, with a large basal tooth and a finely serrate inconspicuous carina apically; fixed digit with a stout triangular tooth in the apical half.

Legs similar to those of *E. pectinigerus*, except that femur iv. is quite differently denticled (the character of these denticles being characteristic of the various species). Femur iv. with an internal serratiform series of 15 denticles, basally coalescent and as long as the diameter of the segment, and with one or two separate apical denticles, the series occupying nearly the whole length of the femur; also a dorsal series of 11 shorter denticles, less than the diameter of the segment, and not basally coalescent (or sometimes one or two pairs); the external side is furnished with rows of tubercles, one series nearer the dorsal ridge being larger, dentiform; there is no inferior external series of denticles.

*Colour*. Body and legs pale olive-grey. Prosoma limited posteriorly by a central semicircular yellow line, with also a lateral spot on each side. The dorsal scutum has a broken central line, while the segments 1–4 are outlined laterally with curved yellow lines, forming a broken scallop-pattern, similar to, but less distinct than, that of *E. pectinigerus*. The scallop limiting the third segment laterally is connected with the body-margin by a short yellow line.

♀. Similar to the ♂, except that femur iv. is simple.

*Hab.* GUATEMALA, Tikal (*Sarg*).

## 12. **Erginus triangularis,** sp. n. (Tab. LIII. figg. 6, 6 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6·5 millim. (excl. mand.); femur iv. 7·25 millim.

General characters as in the allied forms, but the chief difference lies in the fact that the widest part of the dorsal scutum lies behind the middle, whereas in all the others here described it lies in front of the middle transverse line drawn across the opisthosomatic area of the fused segments. Eye-tumulus without warts; eyes much closer together; tumulus not twice, about one-third, longer than broad. Tarsal segments, i. 6, the three basals very slightly dilate; ii. ? (absent); iii. 8; iv. 9. Legs generally similar to those of the other species described.

Femur iv. long, basally slender, apically dilate, with several rows of cusp-like warts, a more conspicuous series lying on the inner apical dorsal line; and a long series of minute warts on the inferior internal margin, with another on the apical half of the inferior external margin, consisting of stout, very closely situated denticles, their bases being broad and set transversely.

*Colour*. Body ochre-brown; legs pale olive-grey. The whole dorsal area, including the prosoma, is widely margined with a filigreed band of yellow. Segments 1, 2, and 3 are limited by indistinct marginal scallops; 1 and 2 have each a pair of yellow dots on each side on the disc. The free segments are not marked with yellow.

*Hab.* GUATEMALA, Tecpan (*Stoll*).

### 13. **Erginus tricristatus,** sp. n. (Tab. LIII. figg. 7, 7 *a–c*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim. (excl. mand.); femur iv. 5 millim.

General characters similar to those of *E. pectinigerus*. Eye-tumulus with a crest of minute tubercles on each side above the eye. Spines on the third tergal segment moderately long, about as long as the space separating them at their base. Tarsal segments, i. 6, the three basals slightly enlarged; ii. ? (missing); iii. 8; iv. 9. Legs similar to those of the above-named species, except that the warts beneath femora i. and ii. are more minute, much shorter beneath femur iii., and very minute beneath tibia iii.

Femur iv. with a median dorsal series of 10 or 11 long (longer than the diameter of the segment), basally coalescent, apically free, denticles, their apices strongly and abruptly recurved; with an external inferior median series of longer, separate, slightly recurved denticles, the distal denticle more remote; and an internal inferior median series of 8 long separate (sometimes a few coalescent) denticles, the distal 4 or 5 recurved, the basal three straighter, apically divergent, numbers 2 and 3 being much longer than the rest. Doubtless these details vary in different individuals.

*Colour*. Body ochre-brown; legs paler, protarsi annulated with faint, narrow, paler bands. Prosoma with a large marginal blotch of filigreed yellow, extending on to the dorsal scutum, breaking off about the middle, with a fine extreme marginal yellow line. The dorsal scutum has a dotted blotch in the middle, while the third segment is margined posteriorly with a filigreed band.

*Hab.* GUATEMALA, Tecpan (*Stoll*).

### 14. **Erginus clavipes,** sp. n. (Tab. LIII. figg. 8, 8 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim. (excl. mand.).

General characters similar to those of *E. pectinigerus*, but otherwise nearly allied to *E. simplicipes*. Tarsal segments, i. 6; ii. 13; iii. 8; iv. 9. Femur iv. basally dilate, apically with an internal attenuate, inferior, slightly sinuous series of 10–12 separate denticles, not basally coalescent, subequal in length, about as long as the diameter of the segment, extending along the basal two-thirds; also an inferior apical series of 5 denticles, being the apical tubercles of a row lying adjacent to the first-named series. There are also two external inferior rows of small tubercles, and an irregular dorsal double series of denticles, more numerous and longer than in *E. simplicipes*.

*Colour*. Body unicolorous dull olive-brown; legs paler, femur iv. reddish-ochre.

*Hab.* GUATEMALA, Cubilguitz (*Sarg*).

### 15. **Erginus erectispinus,** sp. n. (Tab. LIII. figg. 9, 9 *a*, *b*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 6, ♀ 5 millim. (excl. mand.).

♂. General characters similar to those of *E. pectinigerus*, except that the tubercles over the eyes are more conspicuous. Tarsal segments, i. 6; ii. 11; iii. 8; iv. 9. Mandibles: basal segment almost entirely smooth, without tubercles; movable digit about three-fourths the length of the dilate basal portion, with a large basal tooth and an apical serrate carina; fixed digit with an apical serrate carina. The spines on the tergal third segment are much longer than in the allied species.

Legs similar to those of *E. pectinigerus* and *E. serratipes*, but with the armature of femur iv. different. The latter with an inner inferior series of 11 or 12 short denticles, the longest scarcely equalling the diameter of the segment; graduated in length, the central 6 being the longer, the series occupying a space just below the middle of the segment, separate, not basally coalescent. There is no dorsal series of denticles, small granules only being present. The external inferior series consists of about 21 denticles, nearly all more or less coalescent basally; the longest slightly more than the diameter of the segment; the basal denticle longer, conspicuously deflected upwards out of the plane of the rest of the series; the whole series extending from near the base almost to the apex of the segment.

*Colour*. Body umber-brown; legs pale reddish-ochre. The prosoma has a yellow filigreed marginal band, continuing in the form of scallops, limiting laterally segments 1, 2, and 3 of the dorsal scutum and the

latter posteriorly also. A short yellow line runs from the third scallop to the margin, while segments 4 and 5 are indicated by yellow lines.

♀. Similar to the ♂ in structure and colour, except that the basal segments of tarsus i. are not at all enlarged, and femur iv. is simple, not armed with denticles.

*Hab.* GUATEMALA, Petet (*Sarg*).

### 16. **Erginus rectus,** sp. n. (Tab. LIII. figg. 10, 10 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6 millim. (excl. mand.).

♂. General characters similar to those of *E. pectinigerus*. The spines on the tergal third segment are very short. Tarsal segments, i. 6; ii. 13; iii. 8; iv. 9. Mandible: basal segment granulose, the movable digit being similar in length and in the character of its denticulation to that of *E. erectispinus*.

Legs also generally similar to those of the allied species, tibia and femur iii. being furnished with dentiform tubercles, tibia iv. with simple tubercles. Femur iv. with an internal inferior straight (not sinuous) series of 16 denticles (9 and 10 being the longest, one-third longer than the diameter of the segment), the basal denticles separate, the apical more or less basally coalescent, occupying the whole length of the segment; with also a dorsal series of eight short separate denticles, 4 and 5 being the longest, occupying the basal two-thirds, and a ventral row of small tubercles. Tibia and femur iii. bear an inferior series of dentiform tubercles, and tibia iv. is furnished with rows of tubercles of the same character.

*Colour*. Body pale ochre-brown; legs paler. Posterior and lateral margins of the prosoma, and the lateral margins of segments 1, 2, 3, 4 of the dorsal scutum, outlined with yellow; segment 5 with a short line on each side on its disc; a short yellow line runs also from the third scallop to the extreme lateral margin.

*Hab.* GUATEMALA, Petet, San Juan Chamelco (*Sarg*).

### 17. **Erginus pectinigerus,** sp. n. (Tab. LIII. figg. 11, 11 *a*, *b*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ & ♀, 9 millim. (excl. mand.); femur iv. 5 millim.

♂. General characters similar to those of *Pœcilœma rastellifera*. Eye-tumulus with a crest of very minute tubercles on each side above the eye. Spines on the third tergal segment variable in length, in some examples merely tubercles. Tarsal segments, i. 6, the basal three slightly dilate; ii. 13; iii. 8; iv. 9.

Mandible: basal segment granulose on the outer surface; the movable digit of the distal segment is as long as the dilate basal portion, having a long basal and four or more widely separate triangular teeth towards the apex; the fixed digit having four small teeth with several small adjacent apical cusps. Legs similar in general character to those of *Pœcilœma rastellifera*, except that trochanter iv. has a small bifid spur, not strongly curved as in that species; and the denticles in the inferior series on femur iii. are longer in proportion.

Femur iv. with an inner inferior serratiform series of from 14–18 very long, curved, scimitar-like denticles nearly three times as long as its diameter, basally coalescent, usually free apically, often coalescent in groups, the apical denticle strongly curved towards the patella; with a dorsal series of 8–9 curved separate denticles in the basal two-thirds of the segment, about as long as the diameter of the segment, not basally coalescent; also an external inferior series of 3 long and 1 very short separate denticles in the basal third.

*Colour*. Body rich olive-green, blended with reddish-ochre; legs yellow-ochre. The prosoma and segments 1, 2, 3 of the dorsal scutum margined laterally with yellow scallops; the latter also with an indistinct, broken, central yellow line; segments 4 and 5 also indicated with yellow, the latter by a short yellow line on each side on its disc.

♀. Similar to the ♂ in structure and colour, except that the basal segments of tarsus i. are in no way dilate, and femur iv. is simple, without denticles.

*Hab.* GUATEMALA, Guatemala city, Tactic, Cunen, Cahabon (*Sarg*).

## METERGINUS, gen. nov.

Type *M. basalis*, sp. n. Guatemala.

So far as the species described below are concerned, there is no great difference between them and those referred to *Erginus*, except that the number of segments in tarsus i. is seven. The type-species and *M. tibialis* are, however, very different in general appearance, the legs being much longer, a character which is shared also by the female of the type. Otherwise the body, palpi, mandibles, and eye-tumulus are very similar. There is in both these forms a pair of small tubercles on the first segment of the dorsal scutum, as well as spines on the third.

The species in the collection referred to this genus may be recognized thus :—

### *Males.*

A. Femur iv. at least twice as long as, and femur ii. one-half longer than, the body.
  *a*. Femur iv. with a short double series of dentiform tubercles at the base on the inner side. Tarsus iv. with 10 segments. Tibia iv. plain . . . . *basalis*, sp. n.
  *b*. Femur iv. without a double series of dentiform tubercles at the base ; but with a series of more conspicuous tubercles in the apical third beneath. Tarsus iv. with 11 segments. Tibia iv. with a series of dentiform tubercles beneath . . . . . *tibialis*, sp. n.

B. Femur iv. and femur ii. not, or scarcely, longer than the body.
  *a*¹. Trochanter iv. not developed into a caliper-shaped process. Coxa iv. normal. The first two opisthosomatic ventral segments not longer than the width between the spiracles. Tarsus iv. with 10 segments.
    *a*². Tarsus iii. with 8 segments. Femur iv. with a dorsal basal series of long denticles, in addition to the inferior apical double series. Mandibles not developed . . . . . *dorsalis*, sp. n.
    *b*². Tarsus iii. with 9 segments. Femur iv. with a dorsal basal series of small tubercles only, but with also the inferior apical double series. Mandibles very much enlarged . . . . . *apicalis*, sp. n.
  *b*¹. Trochanter iv. developed into a caliper-shaped holder. Coxa iv. enormously developed. The first two opisthosomatic segments longer than the width between the spiracles. Tarsus iv. with 9 segments . . . . . *forcipatus*, sp. n.

### *Females.*

A. Tarsus iv. with 10 segments. Size smaller, length 5 millim. . . . . *basalis*.
B. Tarsus iv. with 9 segments. Size larger, length 7·5 millim. . . . . *forcipatus*.

### 1. **Meterginus basalis**, sp. n. (Tab. LIII. figg. 12, 12 *a*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ & ♀, 6·5 millim. (excl. mand.); femur iv. 13 millim., ♂ & ♀.

♂. General characters similar to those of *Erginus pectinigerus*, except that the legs are much longer in proportion; tarsus i. with 7 segments, of which the basal four are slightly enlarged. The eye-tumulus

has a row of tubercles above the eyes, and there is a pair of tubercles on the first tergal segment and two long spines on the second (this character is not, however, constant in the species in which tarsus i. has 7 segments). Femur iii. and tibia iv. are smooth, without tubercles or denticles. Tarsal segments, i. 7, the basal four slightly enlarged; ii. 15–16, both tibia and protarsus being segmentate and antenniform; iii. 9; iv. 10. The protarsi of all four pairs are scopulate on the apical third or half. Femur iv. with an internal inferior and dorsal subsimilar series of short coalescent denticles in the basal third. Basal segment of the mandible with tubercles.

*Colour*. Body rich olive-green-brown; legs dull reddish-ochre, olive-green in the ♀, like the protarsi and tarsi in the ♂. Prosoma with a narrow posterior marginal and also a broad lateral filigreed yellow marginal blotch, extending halfway down the margin of the dorsal scutum on each side. Dorsal scutum with a central filigreed yellow blotch, terminating in a central yellow line between the cusps on segment 3; this segment is margined posteriorly, and 4 and 5 are also picked out with yellow.

♀. Similar to the ♂ in structure and colour, except that the legs are a little shorter, the basal segment of tarsus i. is not at all enlarged, and femur iv. is simple, without the basal denticles.

*Hab.* Guatemala, Tamahu (*Sarg*).

### 2. **Meterginus tibialis,** sp. n. (Tab. LIII. figg. 13, 13 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6·5 millim. (excl. mand.); femur iv. 12 millim.

♂. General characters similar to those of *M. basalis*, with the four tergal tubercles, long legs, and tubercles above the eyes. Femur iii. with a more conspicuous series of separate dentiform tubercles beneath. Tibia iv. with numerous dentiform tubercles throughout its length beneath. Tarsal segments, i. (broken off); ii. 15–16, both protarsus and tibia being antenniform, segmentate; iii. (broken off); iv. 11. Protarsi with from one-fourth to one-third scopulate.

*Colour*. Body deep purple-brown, the colour of the dorsal area similar to that of *M. basalis*, except that the prosomatic blotches are more conspicuous; legs deep red-brown.

*Hab.* Guatemala, Cunen (*Sarg*).

### 3. **Meterginus dorsalis,** sp. n. (Tab. LIII. figg. 14, 14 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5·75 millim. (excl. mand.); femur iv. 6·5 millim.

General characters similar to those of *M. apicalis* (infra). Basal segment of mandibles with a few marginal warts; apical segment much smaller than in the above-mentioned species. Tarsal segments, i. 7, the basals not dilate; ii. 12; iii. 8; iv. 10. Spines on the tergal third segment recurved.

Femur iv. with a dorsal series of 12 or 13 short (none longer than the diameter of the segment) separate denticles on the basal two-thirds; with also an external series of 8 separate denticles (one or two as long as the diameter of the segment) on the apical third; also an internal series of 8–10 separate denticles on the subapical half. The femur itself is longer than in *M. apicalis*, otherwise the species are very similar.

*Colour*. Body and legs unicolorous yellow-ochre. Prosoma with a slight, filigreed, marginal, yellow blotch and a short, central, posterior, yellow marginal line. Segment 3 of the dorsal scutum limited posteriorly by a fine yellow line; segments 4 and 5 also slightly indicated by short transverse yellow lines on each side.

*Hab.* Guatemala, Tecpan (*Sarg*).

### 4. **Meterginus apicalis,** sp. n. (Tab. LIII. figg. 15, 15 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim. (excl. mand.); femur iv. 5·75 millim.

♂. General characters similar to those of *Erginus pectinigerus*, except that tarsus i. is furnished with 7 segments, the basals being cylindrical, not dilate, and the series of femoral denticles are in the apical half only. Eye-tumulus with tubercles above the eyes; tergal spines fairly long. Apical segment of mandible very much developed; basal segment smooth, but with a few warts on the outer side, otherwise

as in *Erginus erectispinus*. Tarsal segments, i. 7, the basals not dilate; ii. 13 or 14; iii. 9; iv. 10 or 11. Femur iv. apically somewhat dilate, clavate, with an internal inferior series of 9 or 10 separate denticles in the subapical half, and an external series of 6 or 7 separate denticles in the apical third. Tibia iv. with rows of small dentiform tubercles. Femur iii. with numerous denticles beneath, longer towards the apex. Tibia iii. with a double apical series of short denticles beneath.

*Colour*. Body dull olive-brown; legs yellow-ochre, femur iv. reddish-ochre, the protarsi with faint narrow pale rings. Prosoma with a slender marginal lateral spot and a central posterior marginal line; the latter united with a central line and a short transverse line behind the first segment of the dorsal scutum, forming a yellow **I**-shaped mark. The dorsal scutum has also a single lateral marginal spot, while segments 3, 4, and 5 are more or less picked out in yellow on their posterior margins.

*Hab.* GUATEMALA, Cahabon (*Sarg*).

### 5. **Meterginus forcipatus,** sp. n. (Tab. LIII. figg. 16, 16 *a–c*, ♂.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 9, ♀ 7·5 millim. (excl. mand.); femur. iv., ♂, 6·25 millim.

♂. Similar in general character to *Erginus pectinigerus*, except that tarsus i. has seven segments, instead of six. The spines on the tergal third segment are very stout at their base, forming sharp-pointed cones; the first and second segments bear also each a pair of very minute but distinct tubercles. Tarsal segments, i. 7, none dilate; ii. 12–14; iii. 8; iv., 8 ♀, 9 ♂.

Legs i.–iii. smooth, the femora with a few setigerous tubercles. Coxæ iv. very much enlarged and widely divergent behind, bearing a stout apical spur and a pair of small tubercles at their base, close beneath trochanter iii. Trochanter iv. has on the posterior margin on the outer side a small bifid tubercle; on the inner side a large caliper-shaped process, formed by a shorter anterior spur and a larger posterior hooked spur, these two meeting a pair of tubercles, one each on the external margin of the ventral segments 4 and 5. Femur iv. is short, straight, incrassate, becoming more attenuate apically, having an external series of 7 or 8 short, curved, separate denticles in the basal half, continued apically by a series of diminishing tubercles; on the infero-external side about the middle is a double series of 3 or 4 large separate teeth, and near the apex a pair of shorter teeth; on the inner side is a series of 7 or 8 short, stout, conical teeth, extending from near the base almost to the apex. Patella, tibia, and protarsus iv. are covered with dentiform tubercles, a more conspicuous series lying on the inner margins of the tibia and protarsus.

♀. Similar in structure to the ♂, except as regards the usual difference in the segments of tarsus i., and the absence of denticles on femur iv. and the processes on trochanter iv. and on the free segments; coxa iv., however, present, even in this sex, a small hook-like spur on the inner side, but there are no tubercles on the margins of the ventral segments to meet them.

*Colour*. Body deep russet-brown, with a purplish tinge. Legs i., ii., iii. olive-green, the protarsi with narrow pale rings; femur iv. black. Very little dorsal yellow pattern is visible in the ♂, but is strongly marked in the ♀. The prosoma and anterior half of the dorsal scutum bear a vivid submarginal filigreed yellow bar. The dorsal scutum bears a large indistinct central blotch of minute yellow dots; segments 3, 4, and 5 are margined posteriorly with yellow, and the free segments also are picked out with a transverse yellow line.

*Hab.* GUATEMALA, Vera Paz (*Sarg*).

## PŒCILÆMA.

*Pœcilæma*, C. L. Koch, Uebersicht des Arachn. ii. p. 21 (1839).

Type *P. u-flavum* (Perty). Brazil.

The species here referred to this genus differs from *Erginus* chiefly in possessing eight segments, instead of six, in tarsus i. The eye-tumulus is three times longer,

transversely, than broad; the first two ventral opisthosomatic segments are not longer than the width between the spiracles. The mandibles, as in many members of the genus *Erginus*, are very much developed.

A single species only occurs in the collection, and its characters are described below.

### 1. **Pœcilæma rastellifera,** sp. n. (Tab. LIII. figg. 17, 17 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 8 millim. (excl. mand.).

♂. Eye-tumulus low, three times longer, transversely, than broad, plain, without warts or spines. Tergal scutum without well-marked transverse segmental striæ, but with vestigial grooves, sufficient to suggest the original segmentation; the third segment bearing a pair of short cusps transversely situated in the middle. Tarsi i. and ii. with one claw; iii. and iv. with two claws. Tarsal segments, i. 8, none dilate, 1 and 8 being twice as long as the rest; ii. (absent); iii. 9; iv. 11.

Coxa of palpus with a long inferior apical denticle and two smaller ones; femur dilate, compressed, excavate on the inner side, with ten small dorsal tubercles and eight longer ventral denticles, with four other smaller ones at the basal end of the series; patella subcylindrical, apically dilate, its inner margin carinate, bearing a few short fine spines; tibia broad, oval-elongate, compressed, excavate beneath, bilaterally dilate, forming a thick lamelliform plate, its margins bearing numerous short fine spines, becoming stouter towards the apex; tarsus narrow, cylindrical, excavate beneath, marginally set with a series of short fine spines on each side, terminating in a single stout claw, slightly more than half the length of the segment.

Mandible: basal segment globular above, set with a short series of denticles on its lower outer margin, and a cluster of from 16–20 tubercles on its upper outer margin, besides others on the posterior, inner, and anterior margins. Apical segment dilate, gibbous above, the movable digit being half the total length of segment, bearing a single, large, broad tooth towards the base; the fixed digit bearing anteriorly a finely serrated carina.

Legs: coxa i. with a curving row of tubercles beneath, absent from ii., iii., and iv.; coxa iv. with a short, depressed, superior, apical marginal spur. Trochanter iii. with a small, iv. with a longer, stouter, curved, though comparatively short, posterior apical tooth.

Femora i. and ii. with rows of fine cuspules on all sides; iii. with similar rows of larger cuspules, the apical four or five of the infero-posterior and anterior rows being longer than the rest. Femur iv. curved, strongly dilate on the apical half, bearing an inner series of 10 or 11 long teeth, the basal three longer and wider apart, longer than the greatest diameter of the segment; a dorsal series of 18–20 tubercles, forming a serratiform ridge, and an external apical serratiform series of 7–8 denticles, the distal tooth being strongly curved towards the patella. Patellæ i., ii., and iii. simple, iii. enlarged; iv. also enlarged, apically furnished with numerous dentiform tubercles, three longer and more conspicuous on the inner inferior margin. Tibiæ i. somewhat dilate; ii. narrower; iii. enlarged, with tubercles more conspicuous; iv. with several series of more or less conspicuous dentiform tubercles beneath. The edges of the sternal segments iv.–vii. set with a row of small tubercles.

*Hab.* Mexico, Chiapas (*Sarg*).

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The following five genera, three of them new, are so closely allied to *Erginus*, and yet quite distinct, that it is necessary to call attention to them. Their essential characters are given in the Table, *anteà*, p. 550. A short description of the type-species of each of the new genera is added:—

[RHAUCUS.

*Rhaucus*, Simon, Ann. Soc. Ent. Belg. xxii. p. 213 (1879).

Type *R. vulneratus*, Simon. Brazil.

Tarsal segments, i. 6, 1 and 2 inflated; ii. 12; iii. and iv. 9.]

[COSMETUS.

*Cosmetus*, Perty, Del. Anim. Art. Bras. p. 201 (1833).

Type (left in by elimination of species removed to other genera) *C. varius*, Perty. Brazil.

Tarsal segments, i. 10; ii. —?; iii. 13; iv. 15.]

[METARHAUCUS, gen. nov.

1. **Metarhaucus fuscus**, sp. n.

Type, ♂, in coll. Keyserling, in Mus. Brit. Total length 8 millim.

Eye-tumulus nearly three times longer, transversely, than broad, depressed in the middle, tuberculous at the sides above the eyes. Segments 1 and 2 of the dorsal scutum indicated by two deep grooves, their discs armed with small tubercles, that of the first with a pair of larger tubercles; segment 3 with a pair of large, low, tuberculous cones; segments 4 and 5 set with tubercles, the four free segments also set with tubercles. Coxa iv. with two tuberculous bosses on the outer side. The whole body covered with minute, widely scattered tubercles. Femur and tibia ii. armed beneath with a series of denticles; femur iv. studded with tubercles above and two series of denticles beneath; tibia iv. similarly armed, but not so much developed. Tarsal segments, i. 6, 1–3 inflated; ii. 12; iii. 9; iv. 10.

*Hab.* COLOMBIA.]

[NEORHAUCUS, gen. nov.

1. **Neorhaucus aurolineatus**, sp. n.

Type, ♂, in coll. Keyserling. in Mus. Brit. Total length 12 millim.

Very similar in general structure to *Metarhaucus fuscus*, but with the pair of tubercles on segment 3 of the dorsal scutum much smaller; there is also a pair of small central tubercles on segments 1 and 2. The five segments of the dorsal scutum are divided by transverse orange-coloured grooves, with also a similar groove separating the prosoma from the first opisthosomatic segment. The whole body is armed with tubercles. Femora and tibiæ iii. and iv. similar to those of *M. fuscus*, except that the tubercles and denticles are more strongly developed. Tarsal segments, i. 5, 1 and 2 inflated; ii. 14; iii. 8; iv. 9.

*Hab.* COLOMBIA.]

[PARARHAUCUS, gen. nov.

1. **Pararhaucus obscurus**, sp. n.

Type, ♂, in coll. Keyserling, in Mus. Brit. Total length 7 millim.

Similar in general structure and appearance to *Metarhaucus fuscus* and *Neorhaucus aurolineatus*, the opisthosomatic dorsal segments being also divided by five yellow transverse grooves. Femora and tibiæ iii. and iv. also similar, but the tubercles and denticles are less developed. Tarsal segments, i. 7, 1–4 inflated; ii. 18; iii. 9; iv. 9.

*Hab.* COLOMBIA.]

## Fam. GONOLEPTIDÆ.

*Gonoleptidæ*, Sundevall, Consp. Arachn. p. 34 (1833).

No sterno-coxal lobe on leg ii. Palpi in many genera very long, in others shorter even than the body, the femur and patella not compressed, more or less cylindrical, and usually unarmed; tibia and tarsi enlarged, but not lamelliform as in the Cosmetidæ, with usually a marginal row of strong spines, each springing from an enlarged basal portion, but not biarticulate in the true sense; terminal claw usually as long as or longer than the tarsus itself. Spiracles exposed. Second and third opisthosomatic somites fused together, without visible suture. Scutum with usually two or more transverse segmentary striæ. Coxa iv. very much enlarged. Eye-tumulus with one or two coniform spines or stouter coniform horns. Legs iii. and iv. much larger than those of i. and ii., especially in the ♂, in which sex femur iv., and often the patella and tibia, is armed with stout spines and processes. Tarsal claws of i. and ii. 1; of iii. and iv. 2, the latter with an interbasal process.

The genera known to me may be recognized as follows. They include a few not represented in the collection:—

### GENERA.

A. Eye-tumulus with two spiniform cones between the eyes.
  *a*. Dorsal scutum with four transverse grooves . . . . . [GONOLEPTES, Kirby.]
  *b*. Dorsal scutum with two transverse grooves—one behind the prosomatic region, the other between segments 4 and 5.
    $a^1$. Dorsal scutum with several median pairs of tubercles . . [HERNANDARIA, Sörens.]
    $b^1$. Dorsal scutum without median pairs of tubercles . . . . HERNANDARIOIDES, gen. nov.
B. Eye-tumulus with a single long spiniform cone between the eyes.
  $a^2$. Segment 5 of dorsal scutum without tuberculiform cones . . [PACHYLUS, C. L. Koch.]
  $b^2$. Segment 5 of the dorsal scutum with a median pair of tuberculiform cones.
    $a^3$. Segment 5 only (segment 4 of Loman) with a median pair of cones . . . . . [GYNDES, Sörens.]
    $b^3$. Segments 2, 3, 4, 5 each with a median pair of tuberculiform cones . . . . . METAPACHYLUS, gen. nov.

### HERNANDARIOIDES, gen. nov.

Type *H. plana*, sp. n. Panama.

Tarsal segments, i. 6; ii. —; iii. 6; iv. 6. Eye-tumulus with a pair of small spiniform conical eminences. Scutum with two transverse grooves only, the first behind the prosomatic scutum, the second between the fourth and fifth opisthosomatic somites. The second free opisthosomatic somite bearing a single stout spiniform cone in the middle, and a small tubercle on each side; the third somite bears three tubercles, the central one being larger. The scutum bears a few pairs of small tubercles, but no spines. Palpi as long as the body; femur and patella unarmed; tibia with 4 or 5 stout bicomposite spines on each side, the tarsus with 4—4 smaller, but similar, spines on each side. Tarsal claws of i. and ii. 1, of iii. and iv. 2, each with an inter-basal process. Tarsal claw of palpus as long as the tarsus.

This genus, which is based upon a single species, differs from *Hernandaria*, according to the diagnosis of Sörensen, in wanting the eminences on the scutum, and in the number of the tarsal segments (5, 7–8, 6, 7).

### 1. **Hernandarioides plana,** sp. n. (Tab. LIV. figg. 1, 1 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6 millim.

The general characters have been described in the generic diagnosis. Legs iii. and iv. are slightly stouter than i. and ii., covered sparingly with minute tubercles, becoming larger and more cuspulate on iv. Colour entirely yellowish-grey.

*Hab.* Panama, Bugaba (*Champion*).

## METAPACHYLUS, gen. nov.

Type *M. gracilis*, sp. n. Mexico.

Tarsal segments, i. 5; ii. 8; iii. 5; iv. 6. Eye-tumulus with a single median, slender, sharp horn, curving slightly forwards. Scutum with five transverse grooves; segments 2, 3, 4, 5 each with a median pair of small tubercles, 6 (the first free segment), 7, 8 with three, and 9 with two small tubercles. Palpi scarcely as long as the body; femur with two basal spines; tibia and tarsus with a pair of spines on each side. Tarsal claw of palpus about half as long as the tarsus. Legs slender, 4, 2, 3, 1, subsimilar, those of the fourth pair much the longest, more than twice as long as the second pair. Coxa iv. only slightly enlarged. Tarsal claws of iii. and iv. with an inter-basal process.

A single species only of this genus occurs in the collection.

### 1. **Metapachylus gracilis,** sp. n. (Tab. LIV. figg. 2, 2 *a–d*, ♂.)

Type (♀ ?) in coll. Godman & Salvin. Total length 2·5 millim.

The body of this small Opilione is subglobular and of a golden-brown hue, the palpi and mandibles being pale yellow. Legs unarmed. Other characters will be found under the generic diagnosis.

*Hab.* Mexico, Teapa (*H. H. Smith*).

One specimen.

## Fam. ASSAMIOIDÆ.

*Assamioidæ,* Sörensen, Nat. Tidssk. xiv. p. 595 (1884).

No sterno-coxal lobe on leg ii. Palpi variable, very similar to those of the Gonoleptidæ, but short and very stout; the tibia and tarsus fringed with setæ or stout spines having an enlarged base. Spiracles conspicuous. Scutum with five deep transverse striæ (Sörensen gives one only). Terminal claws of tarsi iii. and iv. without interbasal process. Eye-tumulus much developed, forming a large conical horn, with an eye on each side close to its base. Segments of tarsi i. from three to six. Coxa iv. only slightly larger than the rest.

The species here included in this family are nearly allied to *Mitraceras* and *Conomma*, but they differ sufficiently from these, as characterized by Loman, and from each other, to merit inclusion in two separate genera. For the sake of comparison, the essential characters of Loman's two genera are included in the table:—

Genera.

A. Segments of tarsus i. 3. Eye-tumulus curving forwards.
  *a*. Terminal tarsal claw of palpus as long as the tarsus . . . . [Mitraceras, Loman.]
  *b*. Terminal tarsal claw of palpus half as long as the tarsus . . . Paramitraceras, gen. nov.

B. Segments of tarsus i. 4 or 6. Eye-tumulus erect, not curving forwards.

$a^1$. Tarsal segments, i. 4, ii. 11, iii. 5, iv. 6. Terminal claw of palpus half as long as the tarsus . . . . . [Conomma, Loman.]

$b^1$. Tarsal segments, i. 6, ii. 10 or 11, iii. 7, iv. 7. Terminal claw of palpus as long as the tarsus . . . . . Metaconomma, gen. nov.

## PARAMITRACERAS, gen. nov.

Type *P. granulatus*, sp. n. Guatemala.

Eye-tumulus forming a sharp conical horn, curving forwards, the eyes situated one at the base on each side. Tarsal segments, i. 3; ii. 4; iii. 5; iv. 5. Legs iii. and iv. without terminal inter-basal process between the tarsal claws. Scutum with five deep transverse grooves. Legs short. Palpi stout, not longer than the body; terminal claw half as long as the tarsus; tarsus twice as long as the patella.

Two species only occur in the collection, and they may be separated by the following characters:—

### Species.

A. Body and legs less granulose, setæ shorter. Eye-tumulus less hispid. Mandibles more developed; movable digit strongly geniculate. Tarsus of palpus with marginal setiform spines; tibia with a large outer apical spur and an inner apical bifid spur. Size larger, length 7 millim. . . . *granulatus*, sp. n.

B. Body and legs much more granulose, setæ longer. Eye-tumulus more hispid. Mandibles less developed; movable digit not geniculate. Tarsus of palpus with a few marginal setæ; tibia square, with a short denticle at each anterior angle and another on the outer posterior angle. Size smaller, length 5 millim. . . . . *hispidulus*, sp. n.

### 1. **Paramitraceras granulatus**, sp. n. (Tab. LIV. figg. 3, 3 *a*, *b*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

♂. Tarsal segments, i. 3; ii. 4; iii. 5; iv. 5. A single terminal claw on i. and ii.; two claws on iii. and iv., the latter without a process above and between them at their base. Legs iii. and iv. not stouter than i. and ii. Legs, palpi, and integument, ventral and dorsal, covered with minute setigerous granules; the terminal segment of the mandibles, however, being smooth. The movable digit of the mandible is very stout and strongly geniculate, the apical portion bent almost at a right angle to the basal portion, having a very stout tooth near its apex. The fixed digit has a triangular tooth near the apex, falling in front of that on the movable digit, and also a tubercle near its base on the anterior side. The basal segment is sparsely granulose above, with two larger denticles and four smaller ones beneath. Palpi very stout; coxa with a large spur in front; trochanter with a short spur on the underside at the apex; femur with a row of 6 or 7 spurs beneath and a dorsal row of smaller ones; patella globular, granulose, as also are the femora; tibia stout, dilate apically, with a stout apical spur on the outer side and a large bifid spur on the inner side, the anterior branch being much the largest; tarsus broad, elongate, the inner margin armed with fine spines; terminal claw about half as long as the tarsus.

Eye-tumulus forming a large conical horn, bearing an eye at its base on each side, its apex sharp, directed forwards, sparsely covered, as is also the rest of the cephalic segment, with setigerous granules. The dorsal scutum of the opisthosoma very deeply and transversely divided by four striæ (excluding that separating the prosoma); these and the free terminal segments densely covered with setigerous granules. Coxa iv. not much larger than the rest. The space between the spiracles is twice that between the apex

of the first opisthosomatic segment and the posterior margin of the third. Segments 4–7 bear a transverse row of small tubercles. Patellæ iii. and iv. of the legs short and globiform.

*Colour*. Body entirely brown, the mandibles pale yellow-brown.

*Hab.* GUATEMALA, Tecpan (*Stoll*).

2. **Paramitraceras hispidulus,** sp. n. (Tab. LIV. figg. 4, 4 *a–d*, ♂; 5, 5 *a*, *b*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ ♀, 5 millim.

♂. Very similar to that of *P. granulatus*, but much smaller, the mandibles being not nearly so much developed. The legs and body-integument, including the eye-tumulus, are densely covered with setigerous tubercles and granules, the setæ being longer than in the above-mentioned species.

Tarsal segments, i. 3; ii. 4; iii. 5; iv. 5. Terminal tarsal claws simple, those on iii. and iv. without an inter-basal process. Palpi: coxa with 1, and femur with 4 or 5 small denticles beneath; patella with a small tubercle on the inner apical angle; tibia square, with a short denticle at each anterior angle and another on the outer posterior angle; tarsus longer than the tibia and narrower, with a few fine marginal setæ; terminal claw half the length of the tarsus. In some examples, which I take to be females, the tibia of the palpus is simple.

♀. Similar to the ♂, but the tibia of the palpus is simple, parallel-sided, without denticles. The exact form of the conical eye-tumulus varies a little in different individuals.

*Hab.* GUATEMALA, Petet (*Sarg*).

## METACONOMMA, gen. nov.

Type *M. femorale*, sp. n. Mexico.

Eye-tumulus forming a broad, blunt, erect cone, its apex bearing a sharp point; the eyes situated at the base, one on each side. Tarsal segments, i. 6; ii. 10 or 11; iii. 7; iv. 7, without terminal inter-basal process between the tarsal claws. Scutum with five distinct, but shallow, transverse grooves. Legs short in the ♂; femora iii. and iv. denticulate in the apical half. Palpi stout, not longer than the body; tibia and tarsus with stout spines (basally enlarged) on each side; terminal claw as long as the tarsus; tarsus not longer than the patella.

A single species only has been received by us from Mexico. It evidently falls very near the genus *Conomma* of Loman.

1. **Metaconomma femorale,** sp. n. (Tab. LIV. fig. 6, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 7 millim.

♂. Tarsal segments, i. 6; ii. 10 or 11; iii. 7; iv. 7. Terminal claws as in *Paramitraceras granulatus*. Integument, legs, palpi, and mandibles smooth, not granulose. Movable digit of mandible stout, very slightly curved, with a stout triangular tooth towards the base; fixed digit without teeth. Palpi short, not longer than the body, very stout; coxa studded with several rather long denticles; trochanter with a single inferior apical denticle; femur with a very long, stout, basal, spiniform denticle, and a basally single row, and an apically divergent double row, of small denticles; patella with a tuberculous prominence on the inner apical margin; tibia broad, with four large bisegmentate spines on each margin; tarsus shorter than the tibia, with three long finer spines on each margin [these spines, as in the Gonoleptidæ, are modifications of setigerous denticles, in which the seta has itself become transformed into a rigid spine]; terminal tarsal claw as long as the tarsus. Coxa of leg i. with a row of four larger and a row of smaller denticles, besides a row of four small tubercles across the maxillary piece. Legs i. and ii. more slender than iii. and iv., none of them being granulose. Trochanter iii. dilate, its posterior margin tuberculate; femur iii. with a stout, conical, basal spur, and in the apical half a row of six short partially coalescent denticles on each side, besides a row of low tubercles on the posterior margin of the basal half.

Trochanter iv. not dilate, with a spur on each anterior angle; femur iv. similar to femur iii., but with the denticles more numerous. The space between the spiracles is about one-third longer than the width of the first three opisthosomatic segments.

Eye-tumulus forming a very stout, broad, erect, somewhat truncate cone, its extreme apex, however, ending in a sharp point, the eyes being situated one on each at the base. The five segmental striæ of the dorsal scutum are very distinct (but not so deep as in *Paramitraceras granulatus*), the outer margin of the scutum being bordered with a row of fine closely adjacent granules; while the outer angles of each free segment have a short row of granules; ventral segments without granules.

*Colour*. Body uniform brown, mandibles paler.

*Hab.* Mexico, Teapa (*H. H. Smith*).

## Fam. PALPINIDÆ, nov.

The single species comprised in the Palpinidæ differs so entirely in some of the most important details of its structure from those of the allied groups of the Laniatores that one is compelled to make it the type of a new family.

The sternal plate, though narrow and long as in other Laniatores, is broader in proportion, and is dilate opposite the coxæ of legs i., forming a diamond-shaped termination. The palpi are long, slightly longer than the body, slender, cylindrical, unarmed, except for a small spur at the base of the trochanter; the tarsus is almost as long as the tibia, while the tarsal claw is dilate basally and apically produced into a sinuous spine. The legs are short; femora ii. and iv. scarcely longer than the body, unarmed, except coxa and trochanter iii. and iv., ii. and iv. slightly shorter than i. and iii., while the tarsal claws are one in number on legs i. and ii., and two on iii. and iv., the latter with a white vesicle between them. Tarsal segments, i. 2, not dilate; ii. 3; iii. 3; iv. 4. The eye-tumulus, similar to that in *Erginus*, &c., is three times longer than broad (seen transversely). The third segment of the dorsal scutum has a pair of short coniform spines. The free segments have a marginal row of minute tubercles; otherwise the body is entirely smooth. The most noticeable character, however, lies in the sharp definition of three distinct segments on the sheath of the penis: the small apical sclerite, a second, elongate, coniform plate, separated by a fold of connective tissue from the third, a narrow transverse plate bearing the spiracles.

A single genus, based upon several specimens of a single species, occurs in the collection.

### PALPINUS, gen. nov.

Type *P. levis*, sp. n. Costa Rica.

The generic characters will be found under those in the diagnosis of the family.

### 1. **Palpinus levis**, sp. n. (Tab. LIV. figg. 7, 7 *a–d*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 5 millim.; femur iv. 5·5 millim.

The structural characters will be found under the diagnosis of the family. Tarsal segments, i. 2; ii. 3; iii. 3; iv. 4.

*Colour*. Very variable, olive-brown, mottled with darker brown; the legs olive-brown, the coxa and trochanter sometimes paler.

*Hab.* Costa Rica (*Sarg*).

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The following species belonging to the Laniatores are unknown to me :—

### Erginus mexicanus.

*Erginus mexicanus*, Banks, Journ. N. York Ent. Soc. vi. p. 181 (1898) [1].

*Hab.* Mexico [1].

### Cynorta mexicana.

*Cynorta mexicana*, Banks, Journ. N. York Ent. Soc. vi. p. 181 (1898) [1].

*Hab.* Mexico [1].

## Suborder PLAGIOSTETHI.

### Group APAGOSTERNI.

Sternum consisting of two plates: a large, anterior, rectangular plate lying beneath the maxillary lobes of the first pair of legs, and a narrow transverse posterior plate lying partially beneath the maxillary lobes of the second pair of legs. Genital aperture lying behind and above this second sternal plate adjacent to the mouth-parts. Legs usually long and slender; tarsi broken up into numerous segments, with a single terminal claw on all four pairs of legs, simple, not pectinate. Eyes two in number, on a central tubercle.

## Fam. PHALANGIIDÆ.

### Subfam. *PHALANGIINÆ*.

A spiracle present on the tibiæ of all four pairs of legs. Palpi slender, tarsi much longer than the tibia and terminating in a single claw, simple or pectinate. Maxillary lobe of second pair of legs directed inwards and slightly forwards. Prosoma not fused, dorsally, with the opisthosoma; the nine segments of the latter often very distinct, usually at least traceable; five ventral segments also distinct, besides the three segments fused to form the genital plate and another, possibly anal, suppressed. Coxal lobe of palpus bearing two sharp spurs.

The species belonging to this subfamily occurring in our collection can be referred to the two following genera :—

#### Genera.

A. Basal segment of mandible without basal tooth or sharp spur. No conical processes between the anterior margin of the clypeus and the basal dorsal articulation of the mandibles. Legs, as a rule, shorter and stouter, i. and iii. being more robust than ii. and iv., the former of these being the most slender . . . . . Phalangium, Linn.

B. Basal segment of mandible with a basal tooth or sharp spur. Space between the basal dorsal articulation of the mandibles bearing a pair of short, blunt, adjacent, conical processes. Legs, as a rule, very long and slender, filiform, subequal in thickness . Leiobunum, C. L. Koch.

# PHALANGIUM.

*Phalangium*, Linnæus, Syst. Nat. ed. x. p. 618 (1758).

Type *P. opilio*, Linn. Europe.

Anterior margin of the clypeus not armed with conical spurs beneath. Basal segment of mandibles without spur or tooth. Eye-tumulus simple or with cusps. Palpus in the male sex with cuspules beneath the tarsus; patella never developed to form a spur. Palpal claw simple or pectinate. Coxal maxillary lobe with two conical spurs. Tibia ii. without false-articulations. Legs i. and iii. stouter than ii. and iv., the former being the most slender; terminal tarsal claws single, simple.

The species occurring in our collection may be distinguished as follows :—

*Males.*

A. Tibia and protarsus of leg i. specialized as claspers.
  *a*. Protarsus i. strongly curved in the basal half . . . . . *armigerum*, sp. n.
  *b*. Protarsus i. straight throughout . . . . . *horridum*, sp. n.
B. Tibia and protarsus of leg i. normal.
  $a^1$. Third opisthosomatic segment with a central dorsal pair of long spines . *spinigerum*, sp. n.
  $b^1$. Third opisthosomatic segment without a central pair of long spines . . *acanthipes*, sp. n.

*Females.*

A. Legs armed with spines, which are often minute.
  $a^1$. Third segment of opisthosoma with a central dorsal pair of long spines . *spinigerum*.
  $b^1$. Third segment of opisthosoma without long spines.
    $a^2$. Legs much more numerously studded with spines . . . . . *armigerum*.
    $b^2$. Legs much less numerously studded with spines . . . . . *acanthipes*.
B. Legs entirely devoid of spines . . . . . *maculatipes*, sp. n.

## 1. **Phalangium armigerum**, sp. n. (Tab. LIV. figg. 8, 8 *a*, ♂; 9, 9 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂, 10, femur of leg ii. 12 millim.; ♀, body 12, femur of leg ii. 11 millim.

♂. Clypeus with a central pair of minute spines and a lateral one on each side. Eyes two, one on each side of a low globular tubercle, which is transversely truncate in front. Posterior segments of the prosoma each with a transverse row of minute spines. Segments 1–4 of the opisthosoma with a pair of larger central spines, transversely situated, besides a transverse row of more minute spiniform tubercles on each of the nine segments, becoming, however, almost obsolete on the posterior four segments, though more conspicuous laterally.

Mandibles small, basal portion of apical segment as long again as the digits. Movable digit strongly hooked at its apex, each digit bearing a large triangular tooth towards the base, followed towards the apex by a row of serrations.

Palpi: femur set below with scattered spines; tibia with a band of closely-grouped spines beneath; tarsus with a double row of very closely situated spines, extending from the base almost to the apex, the segment terminating in a stout, simple, curved claw. Leg i. developed to form a clasper; all the segments, except the protarsus and tarsus, more or less numerously spined; tibia incrassate beneath in the basal half, bearing on the outer margin a conspicuous series of about twenty black-pointed spines, the inner

margin bearing a series of smaller spines, both series extending from the base to the apex, but the spines diminish in size towards each extremity; protarsus strongly curved in the basal half, bearing beneath a series of 10–12 separate stout spines which meet those beneath the tibia; tarsus flexuose, numerously segmented. Leg ii. very long, attenuate, antenniform; tibia and protarsus not spined, the former with four, the latter with three, pseudo-segments. Leg iii. incrassate, very similar to leg i., but the tibia is not incrassate beneath and the protarsus is straight throughout, both armed with series of clasping-spines beneath, not so much developed, however, as in leg i. Tibiæ and protarsi of i. and iii. not pseudo-segmentate. Leg iv. long, but not so long as ii., larger, but very similar; the tibia is, however, not pseudo-segmentate, while the protarsus has four pseudo-segments, the basal being at least one-fourth longer than the other three together. The coxæ of all the legs bear a conspicuous spine above—a character common to all species.

*Colour*. Upperside dull umber-brown, speckled and marked with black; the second and third opisthosomatic segments bearing a larger black blotch on each side; eye-tumulus with a central pale line (but this is not in any example before me continued down the dorsum, as in many of those of *P. acanthipes*). Underside dull white, with ochre mottlings and suffusions. Coxæ and trochanters of legs black, the former with a median white blotch and an apical white spot, with also a central basal dusky line; legs otherwise dull yellow, the apex of the femora, the patellæ, and tibiæ being dark brown. Palpi like the legs, tarsi dull white. Mandibles dull yellow, mottled with brown.

♀. Similar to the ♂, but legs i. and iii. are not developed as claspers, and the protarsus and tarsus of the palpus are without spines beneath. The pseudo-segments of the legs are similar in number to those of the ♂, but are probably variable in this respect in both sexes.

*Hab.* Mexico, Amula in Guerrero (*H. H. Smith*).

## 2. **Phalangium horridum,** sp. n. (Tab. LIV. figg. 10, 10 *a*, ♂.)

Type, ♂, in coll. Godman & Salvin. Total length 6, femur of leg ii. 7 millim.

♂. Clypeus with a central cusp-bearing tubercle; eyes with a band of cuspules between them. Prosoma with a transverse row of five central cuspules, and also a lateral one on each side, marking its posterior limit. Segments 1–8 of the opisthosoma each studded with a transverse row of tuberculiform cusps, the central two rows being most developed, the lateral cusps becoming obsolete in the posterior segments.

Coxæ of legs with the usual upper basal spine and a lateral apical spine on each side. Tibia of palpus dilate, only twice as long as broad; tarsus studded with cuspules beneath. Legs i. and iii. incrassate, subsimilar, studded with numerous spiniform cusps, the protarsi being armed beneath with numerous cuspules, but those of leg i. are straight, not curved basally as in *P. armigerum*. Tibia ii. with four pseudo-segments and without cusps; tibia iv. with cusps, but without pseudo-segments; protarsi of both ii. and iv. with pseudo-segments. The spiracular orifices on the tibiæ of the legs are situated as usual in the genus, one near the base of the segment on the posterior side, the other at the base of the apical fourth section, in front. Mandibles approximately similar to those of *P. armigerum*.

*Colour*. Body brown, sometimes with a pale, broad, central, longitudinal band; underside, coxæ, and trochanters of legs pale yellow-white; femora, patellæ, and tibiæ of legs dark brown, mottled with dull yellow.

♀ (immature). Similar to the ♂ in general respects; the tarsus of the palpus without cuspules beneath.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

## 3. **Phalangium spinigerum,** sp. n. (Tab. LIV. figg. 11, 11 *a*, ♂; 12, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 7 millim.; femur of leg ii., ♂, 13; protarsus and tarsus ii. 35 millim.

♂. Clypeus with a few minute marginal spines set on a low tubercle; eye-tumulus smooth, globular, eyes comparatively large. Legs, especially ii. and iv., very long, the third, fourth, and fifth segments clothed

with minute spines on all sides. Palpi with a few cuspules beneath the tibia and a double row beneath the tarsus. Somatic segments with transverse dorsal rows of small white spines irregularly grouped in pairs, the paired spines being widely separate from each other. The third segment of the opisthosoma has dorsally and centrally a pair of longer divergent spines.

*Colour*. Legs brown, mottled and spotted with yellow, the coxæ having an apical dark ring. Body ochre-yellow, the segments bearing dorsally a transverse row of black blotches, the paired white spines being more or less confined to and situated on these blotches, those on segments 2 and 3 being larger.

♀. Similar to the ♂ in structure and colour, but the palpi are without cuspules beneath.

*Hab.* Mexico, Amula and Omilteme in Guerrero (*H. H. Smith*).

### 4. **Phalangium acanthipes,** sp. n. (Tab. LIV. figg. 13, ♂; 14, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 7, ♀ 8 millim.; femur of leg ii., ♂ 11, ♀ 10 millim.

♂. Clypeus smooth, without spines; palpi and legs entirely devoid of spines, except the uppersides of the femora of the latter, which are studded with minute spines. Tibia and protarsus i. not specialized, but the tibia has a row of minute spines and the protarsus a series of minute cuspules beneath. Tibia and protarsus ii. and protarsus iv. with four pseudo-segments. Otherwise the general characters resemble those of *P. armigerum*.

*Colour*. Body mottled with brown and dull white; eye-tumulus with a central white band, which is continued, sometimes uninterruptedly, as a narrow white line along the centre of the dorsum to the apex. The third opisthosomatic segment has a conspicuous blackish patch on each side of the central line and its posterior margin is outlined in white. The underside is mottled with dull white and pale brown, with often a dusky, narrow, central, brown band. Legs umber-brown, mottled and spotted with dull white; the coxæ are deep brown, with a large median whitish blotch and a pair of small white spots near the apex, with often a brown line down the centre of the basal half. Palpi like the legs, the tarsi without brown blotches. The colour is, however, very variable, the central white dorsal line being sometimes absent or obsolescent, in some examples quite narrow, in others much broader.

♀. Similar to the ♂, but larger.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 5. **Phalangium maculatipes,** sp. n. (Tab. LIV. figg. 15, 15 *a*, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 4·5, femur of leg ii. 5·5 millim.

General characters as in *P. acanthipes*, but the legs are entirely devoid of spines. Dorsal spines of body almost obsolete.

*Colour*. Body dorsally dull white, with brown spots arranged transversely, having a fine, narrow, longitudinal, pale, central line. Legs brown, spotted with dull white.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

## LEIOBUNUM.

*Leiobunum*, C. L. Koch, Uebersicht des Arachn. ii. p. 35 (1839).

Type *L. rotundum* (Latreille). Europe.

Anterior margin of the clypeus armed with a pair of small adjacent conical spurs beneath. Eye-tumulus simple or with cusps. Basal segment of mandible with an inner basal sharp tooth or spur. Palpi sometimes simple, sometimes with the patella more or less developed; tarsal claw simple or pectinate, the latter often in the male sex only; coxal maxillary lobe with two sharp spurs. Legs very long, slender, subsimilar, with a single simple tarsal claw on each. Tibia ii. with one or more false-articulations. Sexes very similar in general character, but the males are smaller, usually with cuspules beneath the tibia of the palpus.

The species referred to this genus, which occur in our collection, can be recognized by the following characters:—

*Males.*

A. Eye-tumulus without cusps, smooth.
  *a*. Patella of palpus without an internal spur, the inner anterior angle, however, slightly produced. Dorsal area of body closely covered with minute granules . . . . . *coriaceum*, sp. n.
  *b*. Patella of palpus bearing a long blunt spur on the inner anterior angle. Dorsal area of body closely covered with small foveæ, not granules . . . . . *foveolatum*, sp. n.
B. Eye-tumulus bearing cusps.
  $a^1$. First and second dorsal segments of the opisthosoma ridged above . *dromedarium*, sp. n.
  $b^1$. First and second dorsal segments of the opisthosoma not ridged above.
    $a^2$. Coxæ of legs with a marginal series of simple sharp cusps . . . *fulvum*, sp. n.
    $b^2$. Coxæ of legs with a marginal series of trifid cusps . . . . . *albofasciatum*, sp. n.

*Females.*

A. Eye-tumulus without cusps.
  *a*. Body and legs dull orange, unicolorous.
    $a^1$. Dorsal integuments granulose. Patella of palpus without an inner anterior spur, the angle, however, somewhat produced . . . . *coriaceum*.
    $b^1$. Dorsal integuments foveolate. Patella of palpus with a long, blunt, inner anterior spur . . . . . *foveolatum*.
  *b*. Body and legs white and black, in strong contrast . . . . . *marmoratum*, sp. n.
B. Eye-tumulus with cusps.
  $a^1$. First two opisthosomatic segments each bearing a large median dorsal conical tubercle . . . . . *dromedarium*.
  $b^1$. First two opisthosomatic segments normal, without tubercles.
    $a^2$. Body black, with white lateral slashes on the opisthosoma . . . *albofasciatum*.
    $b^2$. Body without white lateral slashes.
      $a^3$. Body dorsally bright orange and black. Patella of palpus with a moderately long, blunt, inner anterior spur . . . . . *fulvum*.
      $b^3$. Body dorsally dull orange and brown. Patella of palpus without spur . . . . . *fulviventre*, sp. n.

### 1. **Leiobunum coriaceum**, sp. n. (Tab. LIV. figg. 16, 16 *a*, ♂; 17, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4, ♀ 6·5 millim.; femur of leg ii., ♀, 12 millim.

♂. Clypeus simple; eye-tumulus with a longitudinal central groove, but without cusps or spines. Prosomatic and opisthosomatic dorsal segments coriaceous, granulose; the anterior five segments of the latter fused. Palpi without spines or cuspules, except an inner marginal row of the latter along the tarsus; tarsal claw with three denticles towards the base. Legs subsimilar, very slender, the femora bearing minute cusps; coxæ with an anterior marginal row of granules; tarsal claws simple, not pectinate.

*Colour*. Body and coxæ of legs dull orange, dusky above the opisthosomatic dorsum, sometimes with a broad central pale band; eye-tumulus black, with a dusky blotch between it and the margin of the clypeus. Mandibles black; digits yellow, with black tips; femur, patella, and dorsal area of tibia of palpus black, tarsus yellow; trochanters and the whole of the legs pitchy-black.

♀. Generally similar to the ♂, but more granulose, especially beneath, with a row of granules on each side of the so-called genital plate. Femur and patella set with short spines, chiefly dorsally, but the femur bears many beneath, the tibia also sometimes bearing one or two beneath; tarsus without cuspules beneath, and the terminal claw without denticles, or only the rudiments of them. Femora of legs, as in the ♂, armed with minute cusps.

*Colour*. Body, mandibles, and palpi, except eye-tumulus, which is black, entirely dull orange; legs pitchy-brown.

*Hab.* Mexico, Orizaba, Omilteme, Amula, Chilpancingo, Cuernavaca (*H. H. Smith*).

### 2. **Leiobunum foveolatum,** sp. n. (Tab. LIV. figg. 18, 18 *a*, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 5, ♀ 3 millim.; leg ii., ♀, 100, femur ii. 20 millim.

♂. General characters as in *L. fulvum*, but the eye-ridges without cusps. Dorsal integuments covered with comparatively large foveæ. Coxæ of legs and ventral segments granulose, the former with marginal rows of granules, but without spines; genital plate covered with foveæ, each with a central fine short seta.

Palpi: femur, patella, and tibia with a few minute spines, the patella having a long blunt spur at its inner apical angle; tarsus without a row of cuspules beneath. Legs, except the two terminal segments, covered with minute cusps.

*Colour*. Dull orange; eye-tumulus, trochanters of the legs, the two posterior prosomatic segments, and a lateral dorsal blotch, black; legs dull orange and pitchy-brown. The body sometimes entirely black or orange.

♀. Similar to the ♂, but larger.

*Hab.* Mexico, Teapa (*H. H. Smith*).

### 3. **Leiobunum dromedarium,** sp. n. (Tab. LIV. figg. 19, ♂; 20, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4, ♀ 6 millim.; femur of leg ii., ♀, 6 millim.

♂. Clypeus simple; ridges of eye-tumulus and anterior area set with numerous spinules; body-segments dorsally set with numerous spinules or cusps, the last two prosomatic and the first two opisthosomatic segments being somewhat ridged and prominent; genital plate, coxæ, trochanters, femora and patellæ of legs set with minute cusps; palpi with a few spines on the femur and tibia, the tarsus with a row of minute cuspules beneath, the tarsal claw minutely pectinate. (This is possibly an immature example, though the penis is well-developed.)

♀. Similar to the ♂, but the dorsal tubercles are much more developed and the spinules more numerous. The spinules on the palpi are stronger, but there are no cuspules beneath the tarsi; tarsal claw pectinate. Tibia of leg ii. in both sexes with a single median false-articulation.

*Hab.* Mexico, Teapa (*H. H. Smith*).

### 4. **Leiobunum fulvum,** sp. n. (Tab. LIV. figg. 21, ♂; 22, ♀.)

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4, ♀ 5 millim.; leg ii., ♂, 20; femur ii., ♀, 16 millim.

♂. Clypeus unarmed; eye-tumulus longitudinally grooved, each eye-ridge with two small cusps; dorsal surface of body densely and coarsely granulose; coxæ of legs, genital plate, and other opisthosomatic ventral segments studded with numerous scattered minute cusps; the coxæ with marginal rows of

closely set cusps; coxa iii. without a posterior marginal row. Palpi with minute cusps on the femur, patella, and tibia; tarsus without cuspules beneath; patella with a blunt inner apical spur. Femora of legs set with very minute cusps.

*Colour*. Coxæ, trochanters, genital plate, and ventral segments slate-colour; prosoma brown dorsally; opisthosoma dorsally orange, with a narrow, central, black, longitudinal band; the first two terminal free segments black in the centre, the last two entirely black. Mandibles brown, with pale digits, apically black; femur, patella, and tibia of palpus black-brown, the two latter pale at the apex, the tarsus pale yellow. Legs pale brown, patellæ and apex of tibiæ darker.

♀. Similar to the ♂, except in size; posterior free segments entirely dark. The genital organ, however, is a sure criterion of the sex.

Tarsal claw of palpus with four denticles in both sexes.

*Hab.* Mexico, Teapa (*H. H. Smith*).

### 5. **Leiobunum albofasciatum,** sp. n.

Type ♂, gynetype ♀, in coll. Godman & Salvin. Total length, ♂ 4, ♀ 6 millim.; leg ii., ♂, 70; femur ii., ♀, 10·5 millim.

♂. Clypeus without spines; eye-tumulus with a central groove, eye-ridges with a row of six cusps on each. Prosomatic and opisthosomatic dorsal integuments densely covered with small foveæ, not granulose; the anterior five segments of the latter area fused. Coxæ of legs, genital plate, and sternal segments rugulose, and covered with numerous very minute granules, but not with small spines as in *L. fulvum*. Coxæ with a marginal series of trifid cusps, except along the posterior margin of iii.; genital plate with a marginal series of spines. Palpi with the femur spinose beneath; patella and tibia densely clothed with minute sharp spines dorsally and laterally, the former bearing on the inner apical margin a large densely spinose spur; tarsus without cuspules beneath; tarsal claw with denticles. Legs, except the two terminal segments, set with minute cusps.

*Colour*. Body brown-black, with the lateral areas of the ventral segments 4–7 dull white; mandibles and tarsus of palpus pale yellow; legs pitchy-brown. Sternal segments often yellow.

♀. Similar to the ♂, but the integuments are finely granulose, not foveolate, and the cusps on the coxæ are simple, not trifid; the eye-ridges are without spines, as are the palpi; femora of the legs furnished with cusps; tarsal claw of the palpus with denticles.

*Hab.* Mexico, Orizaba (*H. H. Smith*).

### 6. **Leiobunum marmoratum,** sp. n.

Type, ♀, in coll. Godman & Salvin. Total length 5 millim.; femur of leg ii. 12 millim.

♀. Clypeus and eye-tumulus smooth. Femora of legs with minute spines, the other segments smooth. Palpi without cuspules beneath. The last two segments of the prosoma dorsally conspicuously folded.

*Colour*. Body and legs black, blotched and mottled with white. Prosoma white, the clypeus and space round the eye-tumulus black; segment i. and half of segment ii. of the opisthosoma bearing a square black blotch finely outlined with white. A broad, central, white band, breaking off into a divergent band on each side, follows; the divergent bands enclosing and forming a large subtriangular black blotch. The lateral dorsal area on each side is black, as is also the apex of the abdomen.

*Hab.* Mexico, Omilteme in Guerrero (*H. H. Smith*).

### 7. **Leiobunum fulviventre,** sp. n. (Tab. LIV. fig. 23, ♀.)

Type, ♀, in coll. Godman & Salvin. Total length 6·5 millim.; femur ii. 16 millim.

♀. Very similar, generally, to that of *L. coriaceum*, but the body-integuments are not nearly so coarsely granulose (the granules being noticeable only under a high magnifying-power). The femur of the palpus is without spinules, the patella with one or two above; tarsal claw without denticles.

*Colour*. Body, including the underside, coxæ of legs, mandibles, and palpi, dull orange; eye-tumulus black; upperside mottled with brown; the second and third dorsal opisthosomatic segments with a subcentral yellow mark on each side, longitudinally; legs jet-black, protarsi and tarsi piceous-brown.

*Hab.* MEXICO, Omilteme in Guerrero (*H. H. Smith*).

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The following species of Phalangiids, probably belonging to the group "Plagiostethi," are unknown to me:—

*Egænus mexicanus*, Becker, C. R. Ent. Belg. (3) no. 69, p. xxvi.
*Hab.* MEXICO.

*Opilio ischionotatus*, Dugès, La Nat. Mex. vii. p. 194, t. 2. figg. 1–10.
*Hab.* MEXICO, Guanajuato.

*Liobunum mexicanum*, Banks, Journ. N. Y. Ent. Soc. vi. p. 181 (1898).
*Hab.* MEXICO, Amecameca (*Barrett*).

*Liobunum albipalpe*, Banks, Journ. N. Y. Ent. Soc. vi. p. 181 (1898).
*Hab.* MEXICO.

*Liobunum denticulatum*, Banks, Journ. N. Y. Ent. Soc. viii. p. 199 (1900).
*Hab.* MEXICO, Cuernavaca, Morelos (*Barrett*).

*Liobunum consimile*, Banks, Journ. N. Y. Ent. Soc. viii. p. 200.
*Hab.* MEXICO, Cuernavaca, Morelos (*Barrett*).

*Leptobunus spinulatus*, Banks, Journ. N. Y. Ent. Soc. vi. p. 182.
*Hab.* MEXICO.

*Hoplobunus barretti*, Banks, Journ. N. Y. Ent. Soc. viii. p. 200.
*Hab.* MEXICO, Cuernavaca, Morelos (*Barrett*).

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## ADDENDA.

*Prionostemma scintillans*, Pocock, Ann. & Mag. Nat. Hist. (7) xi. p. 434 (1903).
*Hab.* GUATEMALA, Barrancos (*Stoll*).

*Prionostemma bicolor*, Pocock, loc. cit. p. 434.
*Hab.* GUATEMALA, Barrancos (*Stoll*).

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[Names in small capitals refer to Families, &c.; those in roman type to the chief reference to each species included in the work; those in italics to species incidentally mentioned, synonyms, &c.]


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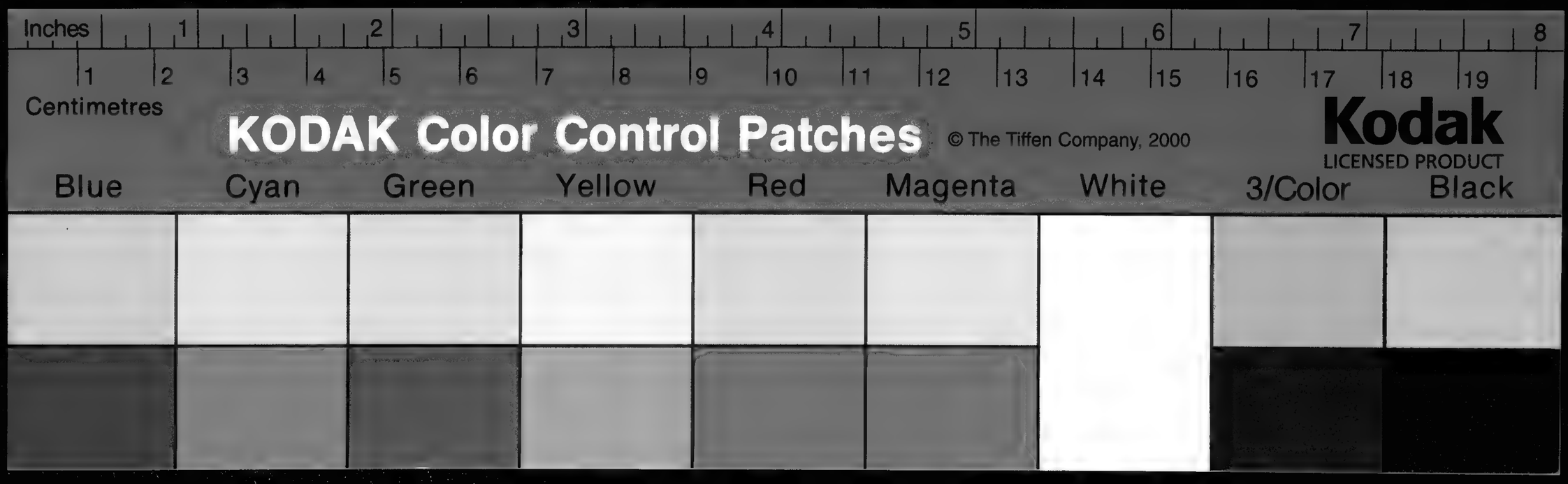
# ARACHNIDA.—ARANEIDEA.

VOL. II.

## PLATE I.

Fig. 1. *Bothriocyrtum fabrile*, ♀ : 1 *a*, profile; 1 *b*, protarsus and tarsus i. from beneath; 1 *c*, third leg from outside; 1 *d*, sternum and labium; 1 *e*, eyes and mandibles from above.

2. *Eucteniza mexicana*, ♀ : 2 *a*, sternum; 2 *b*, claw of tarsus i.; 2 *c*, left mandible from above; 2 *d*, protarsus and tarsus i. from beneath; 2 *e*, left mandible from beneath; 2 *f*, eyes from above.
3. *Eutychides aurantiacus*, ♀ : 3 *a*, profile; 3 *b*, sternum; 3 *c*, claw of tarsus i.; 3 *d*, eyes and mandibles from above; 3 *e*, claw of pedipalp; 3 *f*, protarsus and tarsus i. from beneath.
4. *Eurypelma smithi*, ♀.
5. *Eurypelma panamense*, ♀.
6. *Neocteniza mexicana*, ♀ : 6, carapace from above; 6 *a*, sternum, labium, and coxa of left pedipalp; 6 *b*, spinners from below.
7. *Enrico mexicanus*, ♀ : 7, sternum; 7 *a*, claw of tarsus i.; 7 *b*, claw of palpus.
8. *Pachylomerus zebrinus*, ♂ : 8, bulb of left pedipalp from in front and beneath; 8 *a*, tarsus of left fourth leg from outside.
9. *Eurypelma vagans*, ♂ : palpal bulb from behind.
10. *Schizopelma macropus*, ♂ : 10, right palpal bulb from outside; 10 *a*, ditto, from in front.
11. *Sericopelma communis*, ♂ : 11, right palpal bulb from outside; 11 *a*, ditto, from behind 11 *b*, tibia i., apex from beneath; 11 *c*, eyes from above.
12. *Sphærobothria hoffmanni*, ♂ : 12, sternum, labium, and coxa of pedipalp; 12 *a*, tibia i., apex from beneath; 12 *b*, right palpal bulb from the inside; 12 *c*, ditto, from the outside; 12 *d*, ditto, from in front.
13. *Eurypelma lanceolatum*, ♂ : 13, right palpal bulb from in front; 13 *a*, ditto, from the outside; 13 *b*, tibia, protarsus, and tarsus i. from the outside.
14. *Eurypelma mesomelas*, ♂ : 14, right palpal bulb from the outside; 14 *a*, ditto, from in front; 14 *b*, ditto, from behind; 14 *c*, right palpal bulb from the outside, of different form; 14 *d*, sternum.
15. *Eurypelma longipes*, ♂ : 15, tibia, protarsus, and tarsus i. from the outside; 15 *a*, eyes from above; 15 *b*, right palpal bulb from outside; 15 *c*, ditto, from in front; 15 *d*, spurs of tibia i. from beneath; 15 *e*, apex of palpal bulb.
16. *Eurypelma serratum*, ♂ : 16, apex of palpal bulb; 16 *a*, right palpal bulb from in front; 16 *b*, ditto, from the outside; 16 *c*, tibia, protarsus, and tarsus i. from the outside.
17. *Eurypelma pallidum*, ♂ : 17, tibia, protarsus, and tarsus i. from the outside; 17 *a*, right palpal bulb from the outside; 17 *b*, ditto, from in front; 17 *c*, tibial spurs.
18. *Paraphysa manicata*, ♂ : 18, tibial spurs from the inside; 18 *a*, right palpal bulb from the outside; 18 *b*, ditto, from in front.
19. *Eurypelma spatulatum*, ♂ : 19, right palpal bulb from the outside; 19 *a*, ditto, from in front; 19 *b*, tibial spurs from the inside.
20. *Eurypelma rusticum*, ♂ : 20, right palpal bulb from the outside; 20 *a*, ditto, from in front.
21. *Eurypelma truncatum*, ♂ : 21, right palpal bulb from in front; 21 *a*, ditto, from the outside.




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| 3, 3a-f | ♀ | EUTYCHIDES AURANTIACUS. | 10, 10a | ♂ | SCHIZOPELMA MACROPUS. | 17, 17a-c | ♂ | " FALLIDUM. |
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| 6, 6a, b | ♀ | NEOCTENIZA MEXICANA. | 13, 13a, b | ♂ | EURYPELMA LANCEOLATUM. | 20, 20a | ♂ | " PUSTICUM. |
| 7, 7a, b | ♀ | ENRICO MEXICANUS. | 14, 14a-d | ♂ | " MESOMELAS. | 21, 21a | ♂ | " LICANTA. |

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Arachnida Arthrogastra. Heft II. Taf. 1.

# PLATE II.

Fig. 1. *Cratorrhagus cervinus*, ♀: 1 *a*, eyes; 1 *b*, tarsus iv. from beneath; 1 *c*, tarsal claws of leg i., with claw-tuft removed from right side.

2. *Hapalopus pentaloris*, ♀. (E. Simon's type.)

3. *Hapalopus pentaloris*, ♀: young. (E. Simon's type of *Hapalopus ruficeps*.)

4. *Euagrus mexicanus*, ♀: 4 *a*, profile; 4 *b*, sternum and coxa of left pedipalp.

5. *Eurypelma emilia*, ♂: 5 *a*, right palpal bulb from outside; 5 *b*, ditto, from in front.

6. *Eurypelma caniceps*, ♂: 6 *a*, right palpal bulb from outside; 6 *b*, left leg i. from inside.

7. *Euagrus guatemalensis*, ♂: 7, eyes; 7 *a*, right leg ii.—tibia from beneath; 7 *b*, right leg ii.—tibia and protarsus from outside; 7 *c*, right leg i.—patella, tibia and protarsus from beneath; 7 *d*, right pedipalp from inside; 7 *e*, left mandible from beneath; 7 *f*, spinners from beneath.

8. *Ischnothele digitata*, ♂: 8, eyes; 8 *a*, right pedipalp from inside; 8 *b*, leg i.—tibia and protarsus from outside; 8 *c*, left mandible from beneath; 8 *d*, spinners from beneath.

9. *Ischnothele guianensis*, ♂: leg i.—tibia and protarsus from outside.

10. *Fufius atramentarius*, ♀: left mandible from beneath.

11. *Schizopelma bicarinatum*, ♂: 11, leg i.—apex of tibia from beneath; 11 *a*, right palpal bulb from outside; 11 *b*, right palpal bulb from inside; 11 *c*, right palpal bulb from in front.

12. *Metriopelma spinulosum*, ♂: 12, leg i.—apex of tibia from beneath; 12 *a*, right palpus from inside; 12 *b*, right palpal bulb from outside; 12 *c*, right palpal bulb from inside; 12 *d*, right palpal bulb from in front.

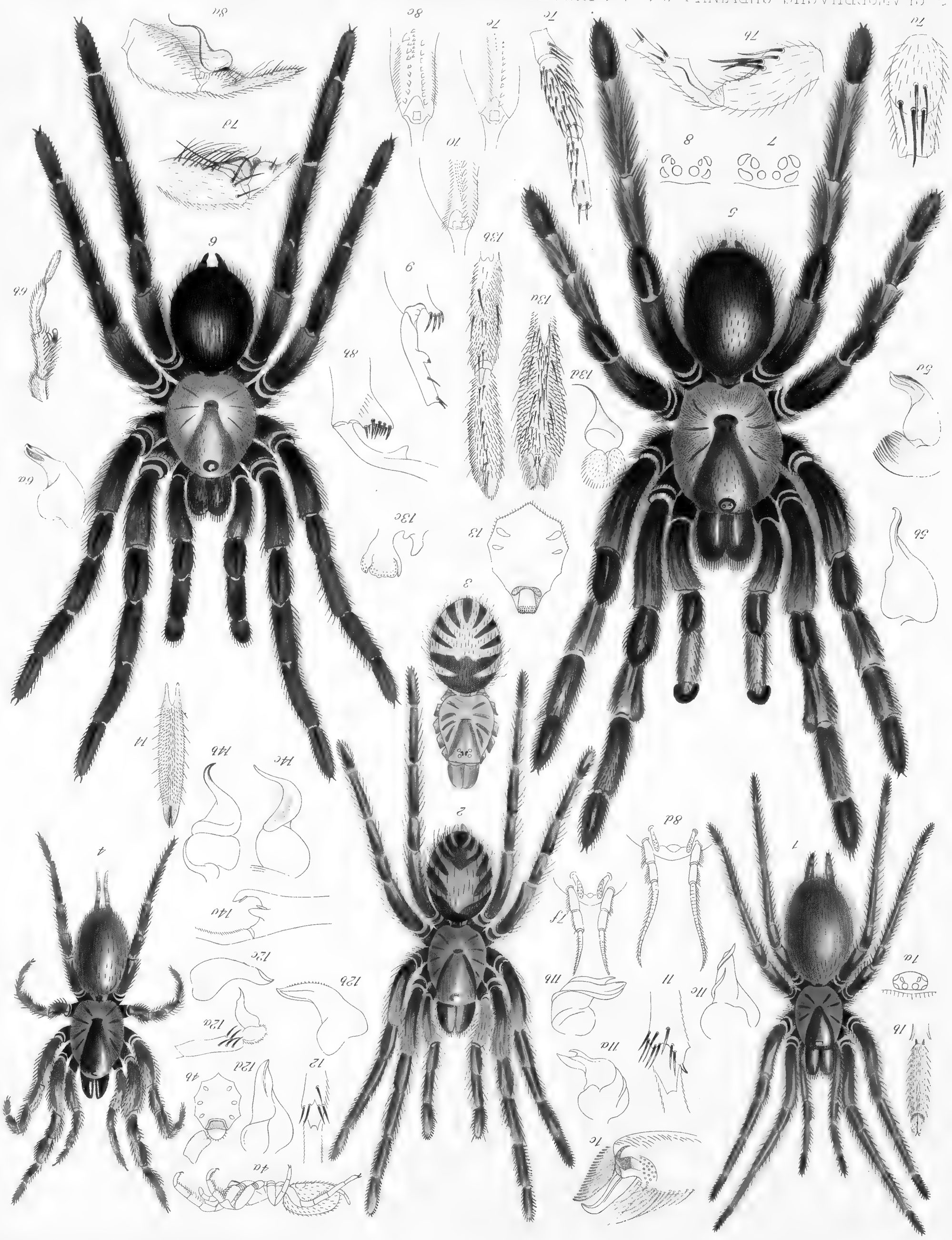
13. *Acanthopelma rufescens*, ♂: 13, sternum; 13 *a*, leg iv.—tarsus from beneath; 13 *b*, leg i. (left)—tarsus and protarsus from beneath; 13 *c*, leg i.—spurs at the apex of the tibia from beneath (slightly diagrammatic); 13 *d*, bulb of left pedipalp from in front.

14. *Hapalopus pernix*, ♂: 14, tarsus iv. from beneath; 14 *a*, leg i.—apex of the tibia from inside; 14 *b*, bulb of right pedipalp from outside; 14 *c*, bulb of right pedipalp from in front *.

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* The numbers are incorrectly given as 14, 14 *a–d*, on the Plate.

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Arachnida Araneidae. Vol II Tab 2.

## PLATE III.

Fig. 1. *Eurypelma seemanni*, ♀.

2. *Hapalopus pentaloris*, ♂ : 2, tibia, protarsus, and tarsus i. from the outside; 2 *a*, ditto, from the inside; 2 *b*, palpal bulb from in front; 2 *c*, ditto, from the outside.

3. *Fufius atramentarius*, ♀: 3 *a*, sternum; 3 *b*, ocular group from in front; 3 *c*, tarsus and protarsus i. from beneath.

4. *Davus fasciatus*, ♂: 4, tibia and protarsus i. from the inside; 4 *a*, palpal bulb from the outside; 4 *b*, ditto, enlarged; 4 *c*, ditto, from the inside; 4 *d*, another aspect.

5. *Dysderina plena*, ♀: 5, abdomen from beneath; 5 *a*, eyes from in front and above.

6. *Caponina sargi*, ♀: 6 *a*, cephalic area, eyes, and mandibles from above; 6 *b*, abdomen, anterior portion, from beneath; 6 *c*, left mandible from the outside, showing striæ; 6 *d*, femur of palpus from the inside, showing stridulating-spine; 6 *e*, spinners from beneath; 6 *f*, leg i.—protarsus and tarsus from the outside; 6 *g*, tarsus i. from the outside, showing tarsal claws; 6 *h*, mouth-parts and mandibles from beneath.

7. *Nops coccineus* *, ♀ : 7, left mandible from the outside, showing striæ; 7 *a*, femur of palpus, showing stridulating-spine; 7 *b*, anterior portion of abdomen and posterior portion of sternum from beneath; 7 *c*, tarsal claws of leg i.; 7 *d*, leg i.—protarsus and tarsus from the outside; 7 *e*, mouth-parts and mandibles from beneath; 7 *f*, spinners from beneath.

8. *Filistata hibernalis*, ♀ ♂: 8, ocular group from above; 8 *a*, leg i.—femur, showing absence of long thick hair; 8 *b*, sternum and mouth-parts, ♀; 8 *c*, palpal bulb of male from in front.

9. *Filistata tractans*, ♀ ♂: 9, ♀; 9 *a*, leg i.—tarsal claws; 9 *b*, leg i.—femur, showing long thick hair; 9 *c*, spinners from beneath, ♀; 9 *d*, palpal bulb of male from in front.

10. *Filistatoides insignis*, ♂ : 10, sternum and labium; 10 *a*, palpal bulb from above; 10 *b*, ocular group from above.

11. *Sicarius thomisoides* †, ♀: 11, tarsal claws of leg i.; 11 *a*, tibia i.; 11 *b*, mouth-parts and mandibles from beneath; 11 *c*, right mandible from outside, showing striæ; 11 *d*, femur of palpus, showing stridulating-spines; 11 *e*, eyes and clypeus from in front; 11 *f*, tarsus of palpus; 11 *g*, spinners; 11 *h*, ditto, cleared of hairs; 11 *i*, eyes from above; 11 *j*, mouth-parts from the inside; 11 *k*, sternum.

12. *Sicarioides rugosus*, ♀: 12 *a*, sternum and mouth-parts; 12 *b*, carapace in profile.

---

* The figures of *Nops coccineus* are taken from a Venezuelan specimen.

† The figures of *Sicarius thomisoides* are taken from a Chilian specimen.

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1. ♀ ELASSOMA SHERMANI.
2, 3, 3a, 3b, ♂ HAPALOPUS PENTALORIS.
4, 4a, 4b, ♀ ECTIUS ATRAMENTARIUS.
4c, 4d, 4e, ♂ DAVUS FASCIATUS.

5, 5a, ♀ DYSDERINA PLANA.
6, 6a, b, ♀ CAPONINA SARGI.
7, 7a, f, ♀ NOPS COCCINEUS.
8, 8a, ♂ FILISTATA HIBERNALIS.

9, 9a, d FILISTATA TRACTANS.
10, 10a, b, ♂ FILISTATIOIDES INSIGNIS.
11, 11a-k, ♀ SICARIUS THOMISOIDES.
12, 12a, b, ♀ SICARIOIDES RUGOSUS.

*Black Bentw. chm.* *Arachnida Britannica. Vol. II. Tab. 3.*

## PLATE IV.

Fig. 1. *Scytodes longipes*, ♀: 1 *a*, maxillæ, inner side; 1 *b*, mandibles from beneath; 1 *c*, leg i., showing onychium and tarsal claws; 1 *d*, mandibles from above, showing striæ on the external margins; 1 *e*, tarsus of palpus, apex; 1 *f*, carapace, profile view; 1 *g*, right mandible and maxilla from the outside; 1 *h*, sternum and mouth-parts from beneath; 1 *i*, spinners from beneath; 1 *j*, vulval area, showing chitinous plates; 1 *k*, eyes from above, in front; 1 *l*, femur of palpus, showing stridulating-spine.

2. *Scytodes longipes*, ♂: 2 *a*, tarsus of palpus, showing bulb.
3. *Scytodes hebraica*, ♂: 3 *a*, tarsus of palpus, showing bulb.
4. *Scytodes hebraica*, ♂, variety.
5. *Scytodes hebraica*, ♀: 5 *a*, vulva, showing chitinous plates.
6. *Scytodes championi*, ♂: 6 *a*, femur of leg i.; 6 *b*, eyes from in front and above; 6 *c*, bulb of palpus from the inner side; 6 *d*, tarsus of palpus, showing bulb from the outside.
7. *Loxosceles rufipes*, ♀: 7 *a*, carapace from above; 7 *b*, mandibles and maxillæ from the outside, showing the striæ on the former; 7 *c*, base of femur of palpus, showing stridulating-spine; 7 *d*, spinners from beneath; 7 *e*, mandibles from in front, showing striæ; 7 *f*, sternum and mouth-parts; 7 *g*, maxillæ from the inner side; 7 *h*, carapace, profile view; 7 *i*, tarsus of leg i.; 7 *j*, tarsus of leg iv.
8. *Loxosceles rufipes*, ♂, palpus, showing tibia and bulb.
9. *Diguetia albolineata*, ♀: 9 *a*, femur of palpus, showing stridulating-spines; 9 *b*, tarsus of palpus, apex; 9 *c*, mandibles from in front; 9 *d*, maxillæ, inner side; 9 *e*, carapace and eyes from above; 9 *f*, sternum and mouth-parts from beneath; 9 *g*, leg i.—tarsal claws; 9 *h*, spinners from beneath.
10. *Diguetia albolineata*, ♂, tibia of leg i., showing spines; 10 *a*, tibia, protarsus, and tarsus of leg i.
11. *Echemus ochraceus*, ♂, eyes from above; 11 *a*, palpus from the outside; 11 *b*, tarsus of palpus from beneath.
12. *Drassodes ferrum-equinum*, ♀, vulva; 12 *a*, maxillæ; 12 *b*, eyes from above.
13. *Drassodes centralis*, ♀, vulva.
14. *Scotophæus pictus*, ♀, vulva.
15. *Prosthesima mœsta*, ♂, tibia and tarsus of palpus from beneath; 15 *a*, ditto from the outside; 15 *b*, ♀, vulva.
16. *Prosthesima lutea*, ♀, eyes from above; 16 *a*, vulva.
17. *Cesonia lugubris*, ♀, eyes from above.
18. *Gnaphosa spiralis*, ♂, palpal bulb from beneath; 18 *a*, mandible, showing chitinous carina; 18 *b*, maxillæ; 18 *c*, eyes from above; 18 *d*, tibia and tarsus of palpus from above; 18 *e*, eyes from above, enlarged.

Inches 1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Centimetres
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak
LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black

1. 1a-i ♀ SCYTODES LONGIPES. 7, 7a-j ♀ LOXOSCELES RUFIPES.
2. 2a ♂ " " 8 ♂
3. 3a ♂ " HEBRAICA. 9, 9a-h ♀ DIGUETIA ALBOLINEATA.
4. ♂ " " *Var.* 10, 10a ♂
5. 5a ♀ " " 11, 11a,b ♂ ECHEMUS OCHRACEUS.
6. 6a-d ♂ " CHAMPIONI. 12, 12a,b ♀ DRASSODES FERRUM-EQUINUM. 18, 18a-e ♂ GNAPHOSA SPIRALIS.
13 ♀ DRASSODES CENTRALIS.
14 ♀ SCOTOPHAEUS PICTUS.
15, 15a ♂, 15b, ♀ PROSTHESIMA MOESTA.
16, 16a ♀ " LUTEA.
17 ♀ CESONIA LUGUBRIS.

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*Shet Centr elm.* *Araeoncida etruscidea. Vol II Tab 4*

# ARACHNIDA.—ARANEIDEA.

VOL. II.

## PLATE V.

Fig. 1. *Scotophæus guatemalensis*, ♀, vulva.

2. *Corinna bulbula*, ♀, tibia of right palpus from above; 2 *a*, right palpus from beneath, showing tibia and tarsus.

3. *Corinna bulbosa*, ♂, tarsus of left palpus from beneath; 3 *a*, tibia and tarsus of left palpus from outside; 3 *b*, patella and tibia of left palpus from above.

4. *Corinna bulbosa*, ♀, full figure, dorsal aspect (legs and palpi omitted); 4 *a*, vulva.

5. *Corinna falcula*, ♂, tarsus of right palpus from the inner side; 5 *a*, central process with membranous process, enlarged; 5 *b*, patella, tibia, and tarsus of right palpus from outside; 5 *c*, tibial spur.

6. *Corinna uncata*, ♂, tarsus of left palpus from beneath; 6 *a*, central bifurcate process with racquet-shaped membrane; 6 *b*, tibia and tarsus of right palpus from above; 6 *c*, tibial processes enlarged and viewed more from beneath.

7. *Corinna mucronata*, ♂, tibia and tarsus of right palpus from beneath; 7 *a*, tibia and base of tarsus of right palpus from above, showing tibial processes.

8. *Corinna mucronata*, ♀, maxillæ and labium; 8 *a*, vulva.

9. *Corinna nervosa*, ♂, tibia and tarsus of right palpus from beneath; 9 *a*, patella and tibia of right palpus from outside, showing tibial processes.

10. *Corinna bicuspis*, ♂, tibia and tarsus of right palpus from the outside, showing the two cusps at the base of the tarsus and tibial spurs; 10 *a*, lower tibial spur, profile view; 10 *b*, tarsus of right palpus from beneath; 10 *c*, apex of tibia and base of tarsus of right palpus from outside and above.

11. *Corinna paradoxa*, ♂, patella, tibia, and base of tarsus of right palpus, showing the complicated tibial processes and the long spur at the base of the bulb; 11 *a*, tarsus of right palpus, showing bulb; 11 *b*, processes at apex of bulb, viewed from the inner side; 11 *c*, another view of the tibial spurs, in which the spur (*b*) is not visible; 11 *d*, the tibial processes, by themselves; 11 *e*, tibial processes (*b*) and (*e*) from above.

12. *Corinna præceps*, ♀, vulva.

13. *Corinna retusa*, ♀, dorsal aspect, legs and palpi omitted; 13 *a*, vulva.

14. *Corinna luctuosa*, ♀, vulva.

15. *Corinna saga*, ♀, vulva.

16. *Corinna nava*, ♀, vulva.

17. *Corinna variegata*, ♀, dorsal aspect; 17 *a*, eyes from above; 17 *b*, eyes from in front; 17 *c*, maxillæ and labium; 17 *d*, vulva.

18. *Corinna semiluna*, ♀, vulva.

19. *Corinna cinnamia*, ♀, vulva.

20. *Trachelas lanceolatus*, ♂, tibia and tarsus of right palpus from beneath; 20 *a*, apex of bulb and lanceolate spine, enlarged; 20 *b*, tibia and tarsus of right palpus from the inside; 20 *c*, ditto, from outside; 20 *d*, mandibles from beneath.

21. *Trachelas lanceolatus*, ♀, base of sternum, coxæ iii. and iv., and pedicle from beneath; 21 *a*, right mandible from beneath; 21 *b*, eyes from in front; 21 *c*, eyes from above; 21 *d*, tibia, protarsus, and tarsus of leg i., showing cuspules; 21 *e*, maxillæ and labium; 21 *f*, vulva.

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NOTE.—The independent letters *a*, *b*, *c*, *d*, *e*, are used in certain cases to indicate identical portions of structure in the various views represented.

1 ♀ SCOTOPHÆUS GUATEMALENSIS.
2, 2a ♂ CORINNA BULBULA.
3, 3a, b ♂ " BULBOSA.
4, 4a ♀ " "
5, 5a-c ♂ " FALCULA.
6, 6a-c ♂ " UNCATA.
7, 7a ♂ " MUCRONATA.
8, 8a ♀ CORINNA MUCRONATA.
9, 9a ♂ " NERVOSA.
10, 10a-c ♂ " BICUSPIS.
11, 11a-e ♂ " PARADOXA.
12 ♀ " PRÆCEPS.
13, 13a ♀ " RETUSA.
14 ♀ " LUCTUOSA.
15 ♀ CORINNA SAXATILIS.
16 ♀ " NIVEA.
17, 17a-d ♀ " MARMORATA.
18 ♀ " PUMILA.
19 ♀ " SIMILIS.
20, 20a-d ♂ PLACHETA ARMATA.
21, 21a-f ♀ " "

F.O.Pickard-Cambridge del.

E.Wilson Cambridge.

# ARACHNIDA.—ARANEIDEA.

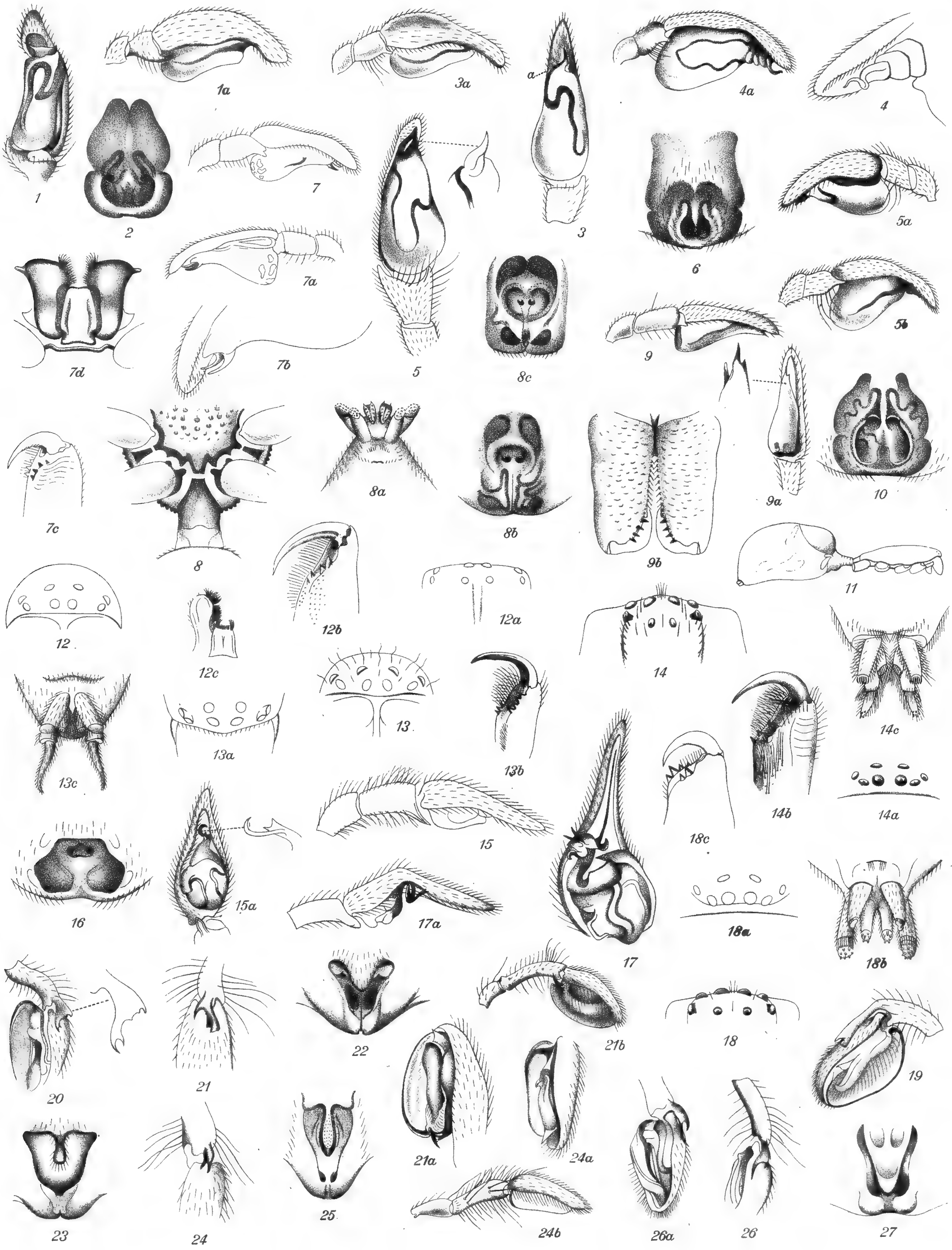
## Vol. II.

## PLATE VI.

Fig. 1. *Trachelas transversus*, ♂, tarsus of palpus from beneath; 1 *a*, patella, tibia, and tarsus from the outside.
2. *Trachelas transversus*, ♀, vulva.
3. *Trachelas spinulatus*, ♂, tarsus of palpus from beneath; 3 *a*, patella, tibia, and tarsus of palpus from the outside.
4. *Trachelas spirifer*, ♂, apex of bulb from beneath; 4 *a*, patella, tibia, and tarsus from the outside.
5. *Trachelas bulbosus*, ♂, tarsus of palpus from beneath, with apex of bulb enlarged; 5 *a*, patella, tibia, and tarsus from the inside; 5 *b*, ditto from the outside.
6. *Trachelas bulbosus*, ♀, vulva.
7. *Trachelas bispinosus*, ♂, patella, tibia, and tarsus of palpus from the outside; 7 *a*, ditto from the inside; 7 *b*, apex of bulb enlarged; 7 *d*, labium and maxillæ.
8. *Trachelas bispinosus*, ♀, posterior portion of sternum with coxæ iii. and iv. and pedicle; 8 *a*, spinners from beneath; 8 *b*, vulva, var.; 8 *c*, ditto, type.
9. *Trachelas truncatulus*, ♂, patella, tibia, and tarsus of palp from the outside; 9 *a*, tarsus of palp from beneath, with apex of bulb enlarged; 9 *b*, mandibles from beneath.
10. *Trachelas similis*, ♀, vulva.
11. *Mazax plana*, ♀, profile of spider (legs and palpi omitted).
12. **Chiracanthium nutrix*, ♀, eyes from in front; 12 *a*, eyes from above and behind; 12 *b*, left mandible from beneath; 12 *c*, labium and right maxilla.
13. **Eutichurus ferox*, ♂, eyes from in front; 13 *a*, eyes from above and in front; 13 *b*, left mandible from beneath; 13 *c*, spinners from beneath.
14. *Strotarchus nebulosus*, ♀, eyes from above and behind; 14 *a*, eyes from in front; 14 *b*, left mandible from beneath; 14 *c*, spinners from beneath.
15. *Strotarchus violaceus*, ♂, patella, tibia, and tarsus of palpus from the outside; 15 *a*, tarsus of palpus from beneath, with apex of bulb enlarged.
16. *Strotarchus violaceus*, ♀, vulva.
17. *Strotarchus prædator*, ♂, tarsus of palpus from beneath; 17 *a*, tibia and tarsus of palpus from the outside.
18. **Clubiona pallidula*, ♀, eyes from above and behind; 18 *a*, eyes from in front; 18 *b*, spinners from beneath; 18 *c*, left mandible from beneath.
19. *Clubiona crocota*, ♂, tibia and tarsus of palpus from the outside.
20. *Clubiona simplex*, ♂, tibia and tarsus of palpus from the outside, with tibial spur enlarged.
21. *Clubiona tigrina*, ♂, tibial spur from the outside and above; 21 *a*, bulb from the outside; 21 *b*, patella, tibia, and tarsus of palpus from the inside.
22. *Clubiona tigrina*, ♀, vulva.
23. *Clubiona sericea*, ♀, vulva.
24. *Clubiona depuncta*, ♂, tibial spur of palpus from the outside; 24 *a*, tarsus of palpus from the outside; 24 *b*, patella, tibia, and tarsus of palpus from the inside.
25. *Clubiona depuncta*, ♀, vulva.
26. *Clubiona tricuspis*, ♂, tibial spur of palpus from the outside; 26 *a*, bulb from the outside and rather beneath.
27. *Clubiona linguata*, ♀, vulva.

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Note.—The species marked with an asterisk are not Central-American forms. Drawings of their structure have been inserted for the purpose of comparing the characters of the original types of the various genera under consideration.




1,1a ♂,2 ♀ TRACHELAS TRANSVERSUS.
3,3a ♂ " SPINULATUS
4,4a ♂ " SPIRIFER.
5,5a,b ♂,6 ♀ " BULBOSUS.
7,7a-d ♂ " BISPINOSUS.
8,8a-c ♀ " "
9,9a,b ♂ " TRUNCATULUS.
10 ♀ " SIMILIS.
11 ♀ MAZAX PLANA.
12,12a-c ♀ CHIRACANTHIUM NUTRIX.
13,13a-c ♂ EUTICHURUS FEROX.
14,14a-c ♀ STROTARCHUS NEBULOSUS.
15,15a ♂,16 ♀ " VIOLACEUS
17,17a ♂ " PRÆDATOR
18,18a-c ♀ CLUBIONA PALLIDULA.
19 ♂ " CROCOTA.
20 ♂ CLUBIONA SIMPLEX.
21,21a,b ♂ " TIGRINA.
22 ♀ " "
23 ♀ " SERICEA.
24,24a,b ♂ " DEPUNCTA.
25 ♀ " "
26,26a ♂ " TRICUSPIS
27 ♀ " LINGUATA

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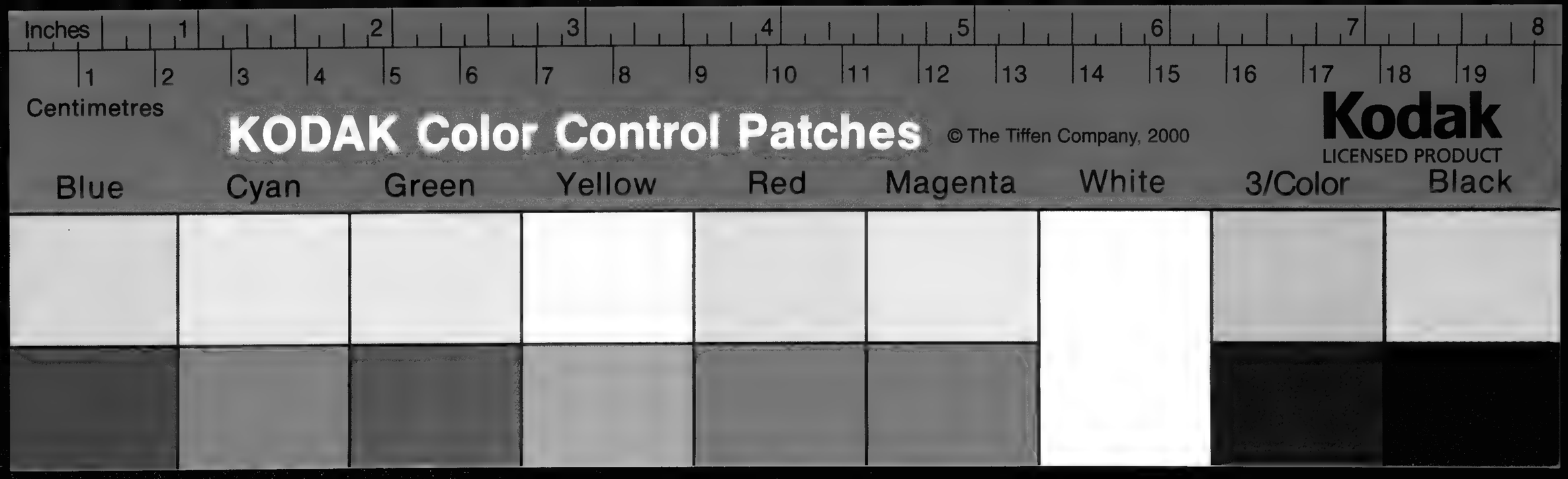
# ARACHNIDA.—ARANEIDEA.

## Vol. II.

## PLATE VII.

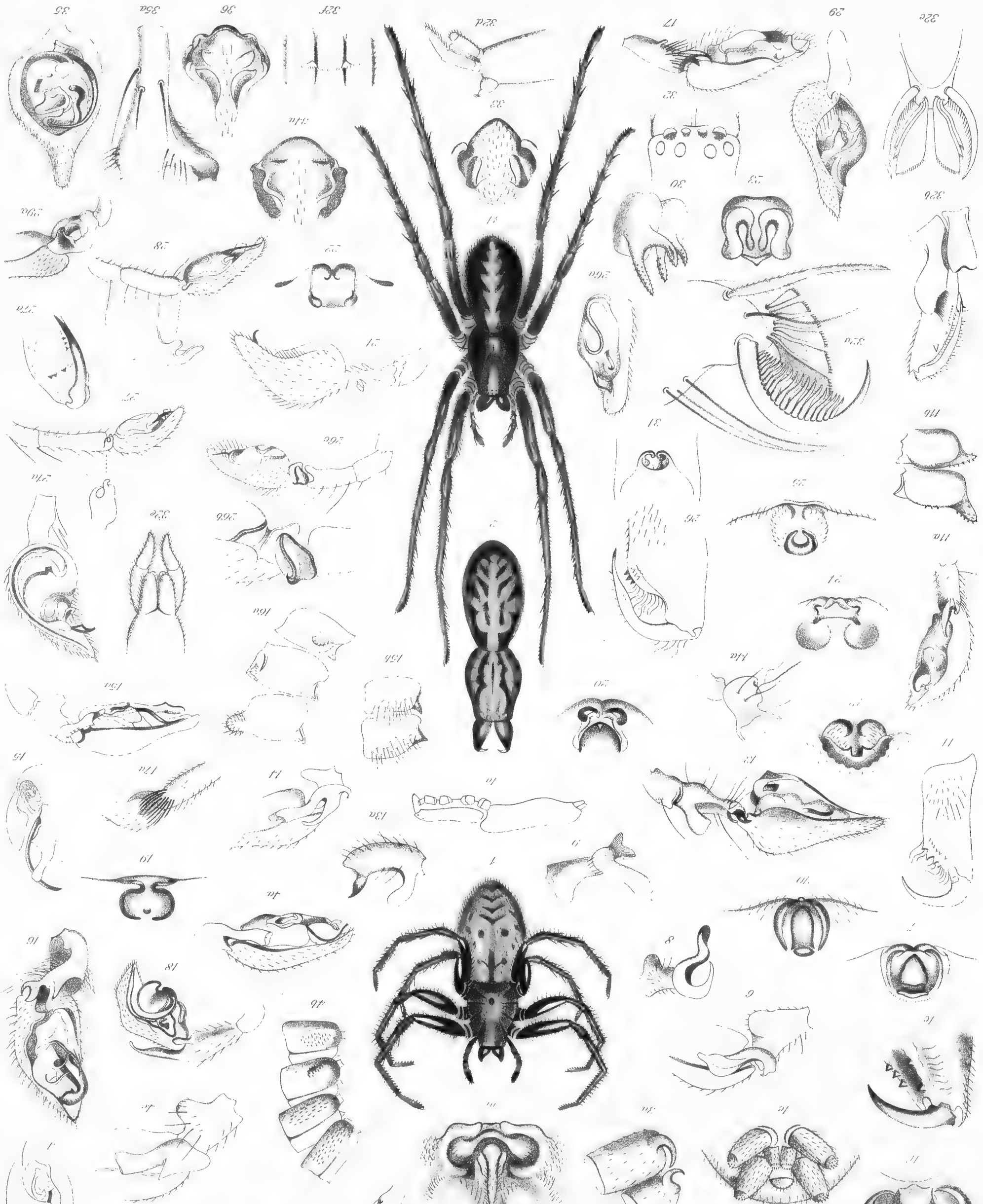
Fig. 1. *Lauricius hemiclæinus*, ♀ : 1 *a*, outline profile ; 1 *b*, eyes from in front ; 1 *c*, apex of right mandible from beneath ; 1 *d*, tarsal claws of leg i. ; 1 *e*, spinners from beneath ; 1 *f*, maxillæ and labium from beneath ; 1 *g*, vulva.

2. *Chemmis frederici*, ♀ , carapace and abdomen from above, legs and palpi omitted.
3. *Anyphæna proba*, ♂ , palpus from the outside ; 3 *a*, coxæ of legs iii. and iv.
4. *Anyphæna gibba*, ♂ , palpal organs, enlarged ; 4 *a*, palpus from the outside ; 4 *b*, coxæ of legs i., ii., iii., and iv. ; 4 *c*, tibia of palpus from the outside, showing the spur enlarged.
5. *Anyphæna gibba*, ♀ , vulva.
6. *Anyphæna gibbosa*, ♂ , tibia of palpus from the outside, showing the spur enlarged.
7. *Anyphæna gibbosa*, ♀ , vulva.
8. *Anyphæna subgibba*, ♂ , tibia of palpus, showing the spur from the outside.
9. *Anyphæna judicata*, ♂ , tibia of palpus, showing the spur from the outside.
10. *Anyphæna excepta*, ♀ , vulva.
11. *Anyphæna simplex*, ♂ , right mandible from beneath ; 11 *a*, palpus from the outside ; 11 *b*, coxæ of legs i. and ii., showing conical prominences.
12. *Anyphæna simplex*, ♀ , vulva.
13. *Anyphæna stylifer*, ♂ , palpus from the outside ; 13 *a*, tibial spur from the outside.
14. *Anyphæna trifida*, ♂ , tibia and base of tarsus of palpus from the outside, showing tibial spur ; 14 *a*, tibial spur from the inside.
15. *Anyphæna plana*, ♂ , palpal organs, enlarged ; 15 *a*, palpus from the outside ; 15 *b*, coxæ of legs iii. and iv., showing absence of spurs and protuberances.
16. *Anyphæna tuberosa*, ♂ , tibia and tarsus of palpus from beneath ; 16 *a*, coxæ of legs ii., iii., and iv.
17. *Anyphæna scopulata*, ♂ , tibia and tarsus of palpus from the outside ; 17 *a*, tibia of palpus from the outside.
18. *Aysha minuta*, ♂ , tibia and tarsus of palpus from the outside.
19. *Aysha minuta*, ♀ , vulva.
20. *Aysha valvula*, ♀ , vulva.
21. *Teudis peragrans*, ♂ , palpus from the outside ; 21 *a*, tibia and tarsus of palpus from the inside.
22. *Teudis peragrans*, ♀ , vulva.
23. *Teudis ruber*, ♀ , vulva.
24. *Teudis roseus*, ♀ , vulva.
25. *Sillus lunula*, ♀ , vulva.
26. *Sillus curvispina*, ♂ , right mandible from beneath ; 26 *a*, palpal organs from the inside ; 26 *b*, tibia and base of tarsus of palpus from the outside, showing tibial spur ; 26 *c*, palpus from the outside.
27. *Sillus attiguus*, ♂ , palpus from the outside showing tibial spur, enlarged ; 27 *a*, right mandible from beneath.
28. *Sillus longispina*, ♂ , palpus from the outside, showing tibial spur enlarged.
29. *Wulfila spatulatus*, ♂ , palpus from the inside ; 29 *a*, tibia and base of tarsus of palpus from the outside.
30. *Cragus inornatus*, ♂ , coxæ of legs ii. and iii.
31. *Cragus inornatus*, ♀ , vulva.
32. *Macrophyes attenuata*, ♂ , eyes from above and in front ; 32 *a*, tarsus of leg i., showing claw and hairs, from one side only ; 32 *b*, left mandible, from beneath, showing labium and left maxilla ; 32 *c*, tarsus of leg i. showing claws and hairs from above ; 32 *d*, apex of abdomen showing spinners and anal tubercle ; 32 *e*, spinners from below ; 32 *f*, abdomen from below showing pair of spiracular orifices.
33. *Ctenus supinus*, ♀ , vulva.
34. *Ctenus peregrinus*, ♀ : 34 *a*, vulva.
35. *Ctenus incolans*, ♂ , tarsus of palpus from below ; 35 *a*, tibia of palpus from above.
36. *Ctenus incolans*, ♀ , vulva.




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1, 1a–g ♀ LAURICIUS HEMICLAEINUS. 14,14a♂ ANYPHAENA TRIFIDA. 25♀ SILLUS LUNULA.
2♀ CHEMMIS FREDERICI. 15,15a,b♂ " PLANA. 26,26a–c♂ " CURVISPINA.
3, 3a♂ ANYPHAENA PROBA. 16,16a♂ " TUBEROSA. 27,27a♂ " ATTIGUUS.
4, 4a–c♂,5♀ " GIBBA. 17,17a♂ " SCOPULATA. 28♂ " LONGISPINA.
6♂,7♀ " GIBBOSA. 18♂,19♀ AYSHA MINUTA. 29,29a♂ WULFILA SPATULATUS.
8♂ " SUBGIBBA. 20♀ " VALVULA. 30♂,31♀ CRAGUS INORNATUS.
9♂ " JUDICATA. 21,21a♂,22♀ TEUDIS PERAGRANS. 32,32a-f♂ MACROPHYES ATTENUATA
10♀ " EXCEPTA. 23♀ " RUBER. 33♀ CTENUS SUPINUS.
11,11a,b♂,12♀ " SIMPLEX. 24♀ " ROSEUS. 34,34a♀ " PEREGRINUS
13,13a♂ " STYLIFER. 35,35a♂,36♀ " INCOLANS.



Arachnida Britannica Vol II Plate 7

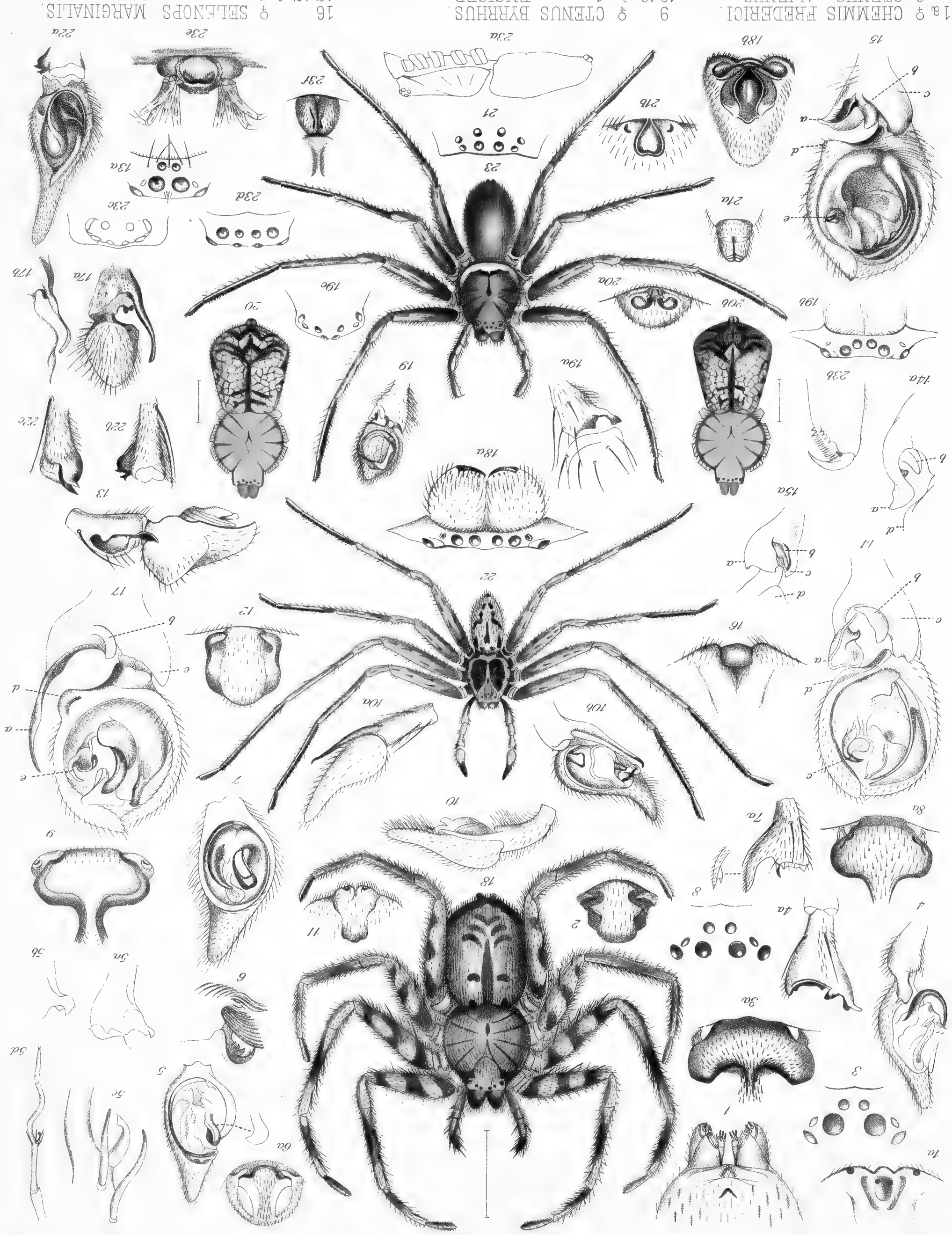
## PLATE VIII.

Fig. 1. *Chemmis frederici*, ♀, spinners from below; 1 *a*, vulva.
2. *Ctenus alienus*, ♀, vulva.
3. *Ctenus excavatus*, ♀, eyes from in front; 3 *a*, vulva.
4. *Ctenus spiralis*, ♂, tibia and tarsus of palpus from the outside and below; 4 *a*, tibia of palpus from the outside.
5. *Ctenus sinuatipes*, ♂, tarsus of palpus from beneath; 5 *a*, tibia of palpus from the outside; 5 *b*, spur of ditto, enlarged; 5 *c*, spurs on the protarsus of the fourth leg; 5 *d*, apex of tibia, protarsus, and tarsus of fourth leg.
6. *Ctenus sinuatipes*, ♀, tarsal claws and claw-tuft; 6 *a*, vulva.
7. *Ctenus calcaratus*, ♂, tarsus of palpus from below; 7 *a*, tibia of palpus, with apex of spur enlarged.
8. *Ctenus bilobatus*, ♀, eyes from in front; 8 *a*, vulva.
9. *Ctenus byrrhus*, ♀, vulva from below.
10. *Ctenus ensiger*, ♂, tibia and tarsus of palpus from the outside; 10 *a*, ditto from above; 10 *b*, ditto from below.
11. *Ctenus ensiger*, ♀, vulva.
12. *Ctenus convexus*, ♀, vulva.
13. *Celætycheus paradoxus*, ♂, tibia and tarsus of palpus from the outside; 13 *a*, eyes from in front.
14. *Selenops nigromaculatus*, ♂, tibia and tarsus of palpus from below; 14 *a*, tibial spur from outside.
15. *Selenops marginalis*, ♂, tibia and tarsus of palpus from below; 15 *a*, tibial spurs from outside.
16. *Selenops marginalis*, ♀, vulva.
17. *Selenops mexicanus*, ♂, tibia and tarsus of palpus from below; 17 *a*, ditto from above; 17 *b*, another view of the tibial spur.
18. *Selenops mexicanus*, ♀, full figure, much enlarged, from above; 18 *a*, eyes from in front; 18 *b*, vulva.
19. *Selenops minutus*, ♂, tibia and tarsus of palpus from below; 19 *a*, ditto from above; 19 *b*, eyes from in front; 19 *c*, eyes from above.
20. *Selenops minutus*, ♀, full figure from above, legs and palpi omitted; 20 *a*, vulva; 20 *b*, variety.
21. *Pseudosparianthis mirabilis*, ♀, eyes from above; 21 *a*, spinners from below; 21 *b*, vulva.
22. *Heteropoda venatoria*, ♂, full figure from above; 22 *a*, tibia and tarsus of palpus from below; 22 *b*, tibia from below; 22 *c*, ditto from outside.
23. *Heteropoda venatoria*, ♀, full figure from above; 23 *a*, profile; 23 *b*, right mandible from below; 23 *c*, eyes from above; 23 *d*, ditto from in front; 23 *e*, method of holding and carrying egg-sac; 23 *f*, vulva.

Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black

F.O. Pickard-Cambridge, del. Edwin Wilson, lith. Cambridge.

| | | | | |
|---|---|---|---|---|
| 1, 1a | ♀ | CHEMMIS | FREDERICI. | |
| 2 | ♀ | CTENUS | ALIENUS. | |
| 3, 3a | ♀ | ,, | EXCAVATUS. | |
| 4, 4a | ♂ | ,, | SPIRALIS. | |
| 5, 5a–d | ♂ | ,, | SINUATIPES. | |
| 6, 6a | ♀ | ,, | ,, | |
| 7, 7a | ♂ | ,, | CALCARATUS. | |
| 8, 8a | ♀ | ,, | BILOBATUS. | |
| 9 | ♀ | CTENUS | BYRRHUS. | |
| 10, 10a, b | ♂ | ,, | ENSIGER. | |
| 11 | ♀ | ,, | ,, | |
| 12 | ♀ | ,, | CONVEXUS. | |
| 13, 13a | ♂ | CELAETYCHEUS | PARADOXUS. | |
| 14, 14a | ♂ | SELENOPS | NIGROMACULATUS. | |
| 15, 15a | ♂ | ,, | MARGINALIS. | |
| 16 | ♀ | SELENOPS | MARGINALIS. | |
| 17, 17a, b | ♂ | ,, | MEXICANUS. | |
| 18, 18a, b | ♀ | ,, | ,, | |
| 19, 19a–c | ♂ | ,, | MINUTUS. | |
| 20, 20a, b | ♀ | ,, | ,, | |
| 21, 21a, b | ♀ | PSEUDOSPARIANTHIS | MIRABILIS. | |
| 22, 22a–c | ♂ | HETEROPODA | VENATORIA. | |
| 23, 23a–f | ♀ | ,, | ,, | |



*Stark Centr. ethm.* *Phrynichidae & Thelyphonidae. Pl. II. Gall. &c.*

# ARACHNIDA.—ARANEIDEA.

## Vol. II.

## PLATE IX.

Fig. 1. *Hœdillus sexpunctatus*, ♀: 1 *a*, outline profile; 1 *b*, eyes from above; 1 *c*, eyes from in front; 1 *d*, left mandible from beneath.

2. *Sparassus obtusus*, ♂, right palpus from the outside; 2 *a*, tarsus of palpus from beneath.
3. *Sparassus obscurus*, ♂, right palpus from the outside; 3 *a*, tarsus of palpus from beneath.
4. *Sparassus fugiens*, ♂, right palpus from the outside; 4 *a*, ditto from the inner side, showing bulb.
5. *Sparassus erroneus*, ♀, vulva.
6. *Sparassus manifestus*, ♂, left palpus from the outside.
7. *Sparassus stylifer*, ♂, left palpus from the outside; 7 *a*, ditto from beneath.
8. *Sparassus minax*, ♂, tibia of left palpus from outside; 8 *a*, tarsus of ditto from beneath.
9. *Sparassus minax*, ♀, vulva.
10. *Sparassus clarus*, ♂, tarsus of palpus from beneath; 10 *a*, tibia of ditto from the outside; 10 *b*, ditto from the inner side.
11. *Sparassus clarus*, ♀, eyes from in front; 11 *a*, ditto from above; 11 *b*, vulva.
12. *Sparassus ensiger*, ♂, tibia of palpus from the outside; 12 *a*, tarsus of ditto from beneath; 12 *b*, tibia of ditto from above.
13. *Sparassus annulatus*, tarsus of palpus from beneath; 13 *a*, ditto from the inner side; 13 *b*, tibia of ditto from the outside; 13 *c*, bulb of ditto from beneath; 13 *d*, tibia of ditto from above.
14. *Sparassus ferrugineus*, ♀, vulva.
15. *Ramnes semotus*, ♀, eyes from above; 15 *a*, eyes from in front; 15 *b*, right mandible from beneath.
16. *Prusias nugalis*, ♂, eyes from above; 16 *a*, eyes from in front.
17. *Ebo latithorax*, ♀, eyes from above.
18. **Philodromus aureolus*, ♀, eyes from above.
19. *Apollophanes punctipes*, ♂, right palpus from beneath; 19 *a*, apex of tibia of ditto, showing form of tibial spur.
20. *Apollophanes punctipes*, ♀, vulva.
21. *Apollophanes maculatipes*, ♂, eyes from above; 21 *a*, right palpus from beneath; 21 *b*, apex of tibia of ditto, showing form of tibial spur.
22. **Thanatus formicinus*, ♀, eyes from above.
23. *Tibellus affinis*, ♀, eyes from above.
24. **Pistius truncatus*, ♀, eyes from in front; 24 *a*, eyes from above.
25. *Misumenoides tibialis*, ♂, tibia and tarsus of left palpus from above.
26. *Misumenoides blandus*, ♀, vulva.
27. *Misumenoides magnus*, ♂, tibia and tarsus of left palpus from above.
28. *Misumenoides magnus*, ♀, eyes from in front; 28 *a*, eyes from above; 28 *b*, vulva.
29. *Misumenoides parvus*, ♂, right palpus from above.
30. *Misumenoides annulipes*, ♂, tibia and tarsus of palpus from the outside.
31. *Misumenoides bifissus*, ♂, tibia and tarsus of palpus from the outside.
32. **Runcinia lateralis*, ♀, eyes from in front; 32 *a*, eyes from above.
33. **Misumena vatia*, ♀, eyes from in front; 33 *a*, eyes from above; 33 *b*, tarsus of leg i.; 33 *c*, tarsus of leg i. beneath; 33 *d*, left mandible from beneath.

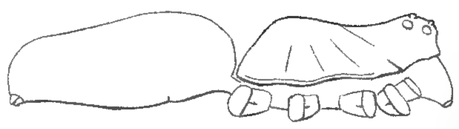
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Note.—The species marked with an asterisk are not Central-American forms. Drawings of their structure have been inserted to illustrate the characters of the typical representatives of these genera.

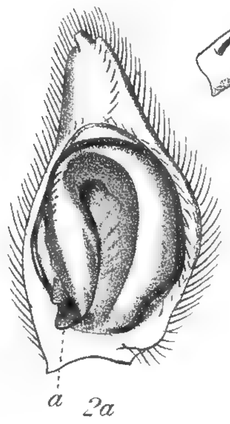
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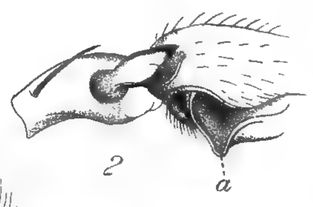

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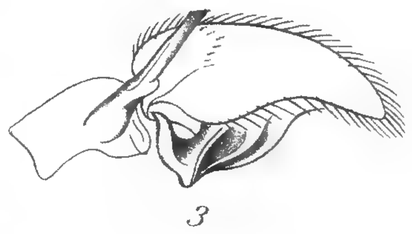

1b


1a

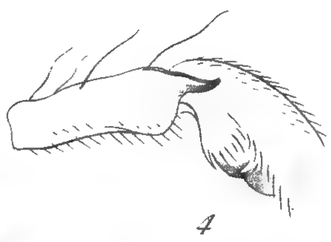

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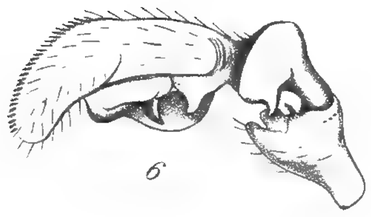

a 2a

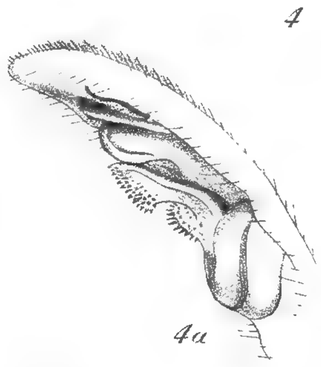

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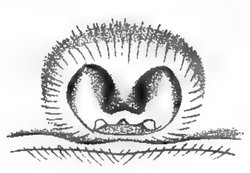

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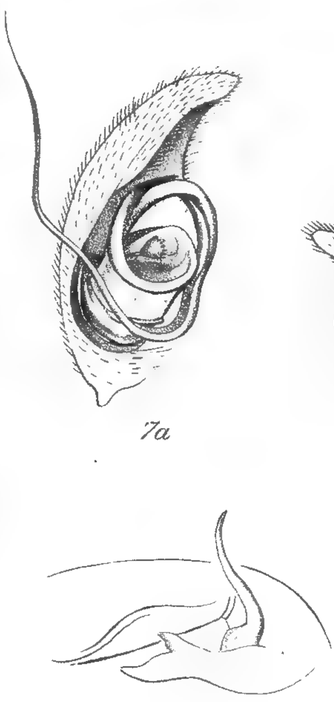

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6


4a

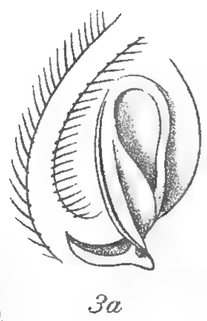

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8a

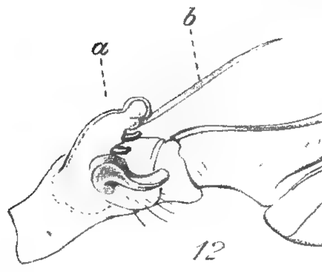

10a


7a

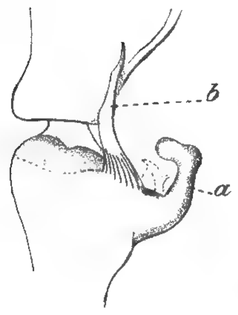

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3a

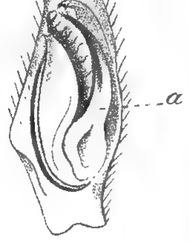

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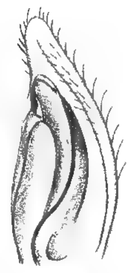

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a b

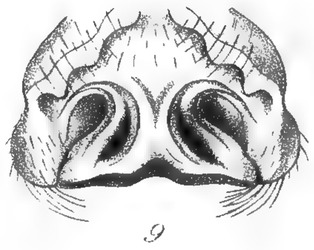

b a


12a


a

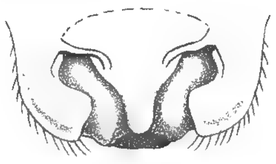

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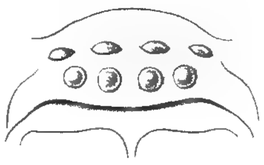

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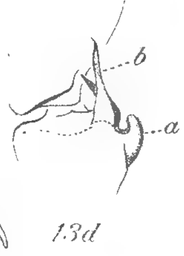

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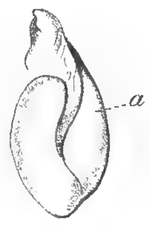

10b


11b


11

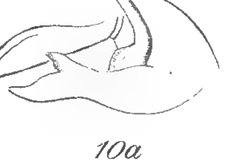

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13d


a


11a


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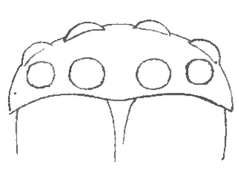

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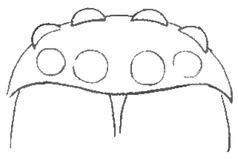

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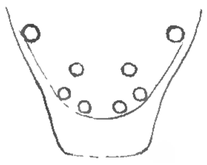

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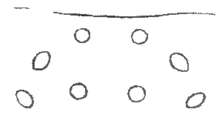

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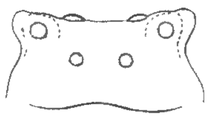

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15a


16a


23


24a


24

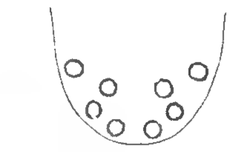

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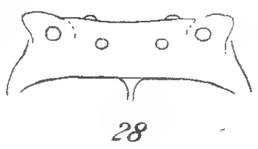

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21a

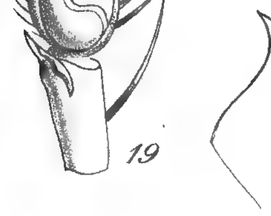

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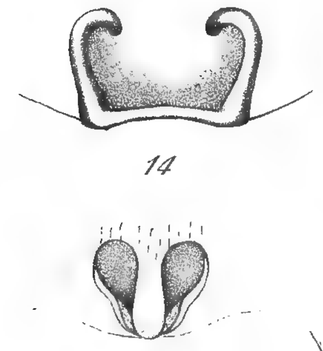

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28


28b


19


19a


29


30

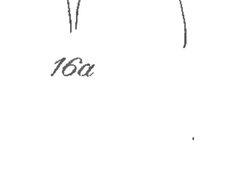

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33c

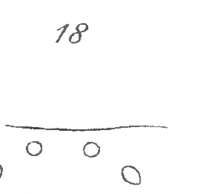

33b


32


32a


33


33a


33d

1,1a-d ♀ HŒDILLUS SEXPUNCTATUS.
2,2a ♂ SPARASSUS OBTUSUS.
3,3a ♂ " OBSCURUS.
4,4a ♂ " FUGIENS.
5 ♀ " ERRONEUS.
6 ♂ " MANIFESTUS.
7,7a ♂ " STYLIFER.
8,8a ♂, 9 ♀ " MINAX.
10,10a,b ♂ " CLARUS.
11,11a,b ♀ " "
12,12a,b ♂ SPARASSUS ENSIGER.
13,13a-d ♂ " ANNULATUS.
14 ♀ " FERRUGINEUS.
15,15a,b ♀ RAMNES SEMOTUS.
16,16a ♂ PRUSIAS NUGALIS.
17 ♀ EBO LATITHORAX.
18 ♀ PHILODROMUS AUREOLUS.
19,19a ♂,20 ♀ APOLLOPHANES PUNCTIPES
21,21a,b ♂ " MACULATIPES.
22 ♀ THANATUS FORMICINUS.
23 ♀ TIBELLUS AFFINIS.
24,24a ♀ PISTIUS TRUNCATUS.
25 ♂ MISUMENOIDES TIBIALIS.
26 ♀ " BLANDUS.
27 ♂, 28, 28a,b ♀ " MAGNUS.
29 ♂ " PARVUS.
30 ♂ " ANNULIPES.
31 ♂ " BIFISSUS.
32,32a ♀ RUNCINIA LATERALIS.
33,33a-d ♀ MISUMENA VATIA

F.O. Pickard-Cambridge, del

Edwin Wilson, lith. Cambridge.

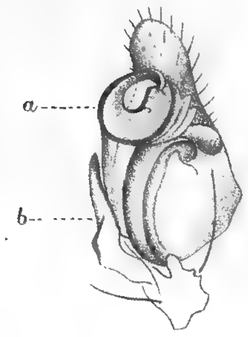
# PLATE X.

Fig. 1. **Misumenops georgianus*, ♀, vulva: (*a*) chitinous hood, (*b*) fovea.
2. *Misumenops spiralis*, ♂, palpus from beneath: (*a*) spine, (*b*) tibial spur. (Figures taken from Keyserling's type.)
3. *Misumenops volutus*, ♂, palpus from beneath: (*a*) spine, (*b*) tibial spur; 3 *a*, ditto from the outside.
4. *Misumenops prosper*, ♂, palpus from beneath; 4 *a*, ditto from the outside: (*a*) spine, (*b*) tibial spur.
5. *Misumenops damnosus*, ♀, vulva; 5 *a*, lateral view: (*a*) chitinous hood, (*b*) fovea. (These figures are taken from the type of *M. particeps*, O. P.-Cambr.)
6. *Misumenops spinosus*, ♂, palpus from beneath: (*a*) spine, (*b*) tibial spur.
7. *Misumenops pascalis*, ♀, vulva.
8. *Misumenops americanus*, ♀, vulva (type); 8 *a*, ditto, variety from St. Vincent.
9. *Misumenops americanus*, var. *pallens*, ♀, vulva; 9 *a*, ditto, variety. (Our figures are taken from Keyserling's types.)
10. *Misumenops dubius*, ♀, caput and eyes from in front; 10 *a*, ditto from above and in front (figures from the type of *M. dubius*); 10 *b*, vulva (figure from the type of *M. ornatus*).
11. *Xysticus pellax*, ♂, palpus from the outside: (*a*) spurs.
12. *Xysticus pellax*, ♀, vulva.
13. *Xysticus facetus*, ♂, palpus from the outside: (*a*) spurs.
14. **Synema globosum*, ♀, eyes from in front and above.
15. *Synema affinitatum*, ♀, vulva.
16. *Synema affinitatum*, ♀, var. *cultum*, vulva.
17. *Synema affinitatum*, ♂, var. *politum*, palpus from beneath.
18. *Synema palliatum*, ♀, vulva.
19. *Synema bimaculatum*, ♀, vulva.
20. *Synema maculosum*, ♂, palpus from beneath.
21. *Synema maculosum*, ♀, vulva.
22. *Synema socium*, ♂, palpus from beneath.
23. *Parasynema cirripes*, ♀, eyes from in front and above.
24. **Tmarus piger*, ♀, eyes from in front.
25. *Tmarus studiosus*, ♀, vulva.
26. *Tmarus intentus*, ♂, palpus from beneath.
27. *Tmarus intentus*, ♀, vulva.
28. *Tmarus ineptus*, ♀, vulva.
29. *Tmarus mundulus*, ♀, vulva.
30. *Tmarus decens*, ♀, vulva.
31. *Tmarus jocosus*, ♀, vulva.
32. *Tmarus corruptus*, ♀, vulva.
33. *Epicadinus trifidus*, ♀, dorsal view of carapace and abdomen; 33 *a*, lateral view of ditto.
34. **Epicadus heterogaster*, ♀, dorsal view of carapace and abdomen; 34 *a*, lateral view of ditto; 34 *b*, caput and eyes from in front; 34 *c*, femur and patella of leg i.
35. *Onocolus pentagonus*, ♂, palpus from beneath; 35 *a*, ditto from the outside; 35 *b*, anterior margin of caput, showing the pair of sensory spines (*b*) between the anterior central eyes (*a*).
36. *Onocolus pentagonus*, ♀, dorsal view of carapace and abdomen; 36 *a*, caput and eyes from above; 36 *b*, tactile tubercle and hair beneath femur i.; 36 *c*, another form of tactile hair; 36 *d*, lateral view of movable spine beneath tibia i., with its socket; 36 *e*, tarsus of leg i., showing tarsal claws; 36 *f*, vulva.
37. *Tobias rugosus*, ♂, palpus from the outside.
38. *Tobias rugosus*, ♀, dorsal view of carapace and abdomen; 38 *a*, lateral view of ditto; 38 *b*, cephalic region and eyes from above; 38 *c*, caput and eyes from in front.

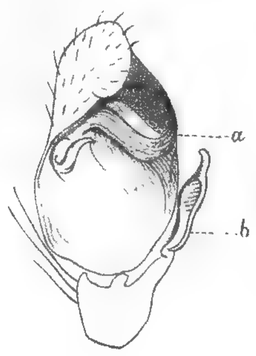
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NOTE.—The species marked with an asterisk are not Central-American forms. Figures of their essential characters are inserted for the purpose of comparison.

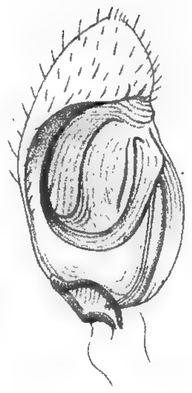
The independent letters *a*, *b*, *c* are used in certain cases to indicate identical portions of structure in the various views represented.

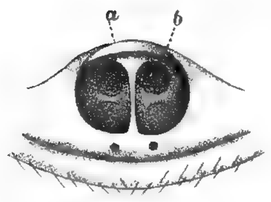


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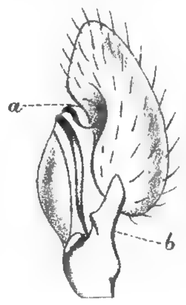


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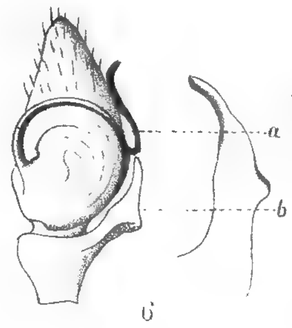

3a



1



4a



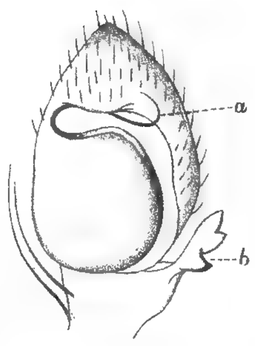
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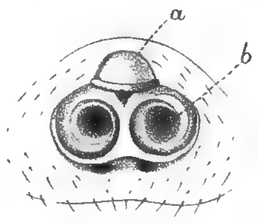

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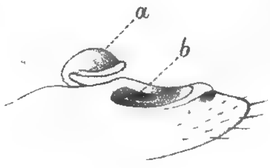

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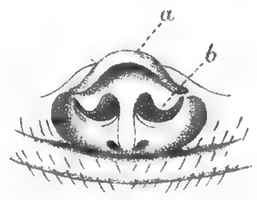
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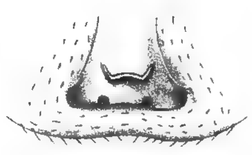
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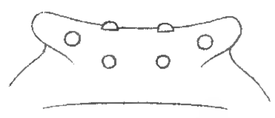


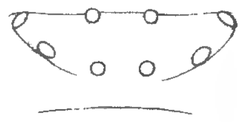
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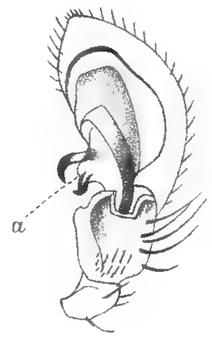


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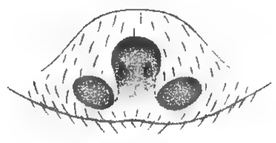

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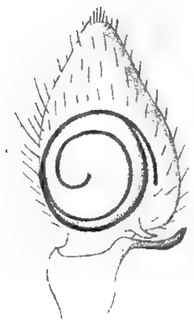
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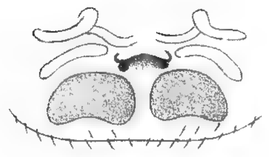

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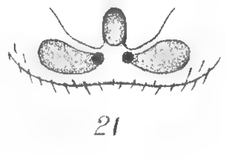

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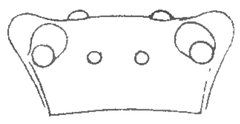

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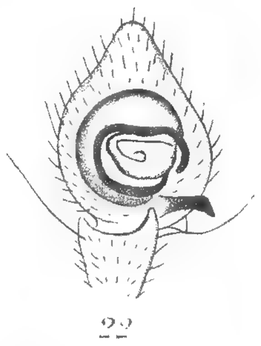

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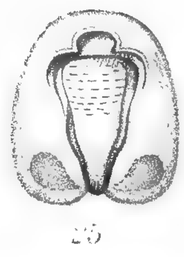

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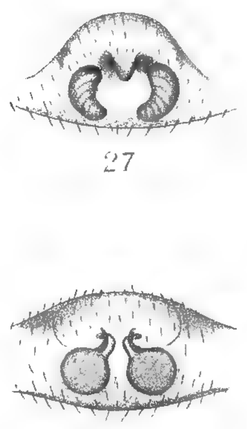

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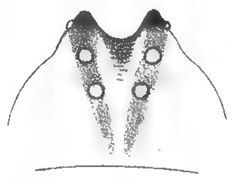

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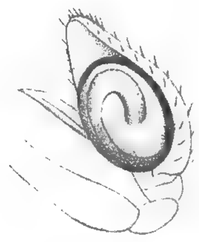

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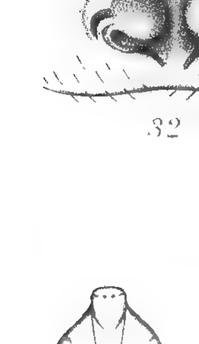

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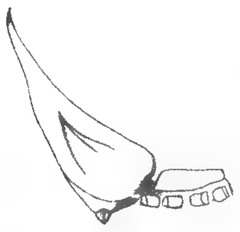

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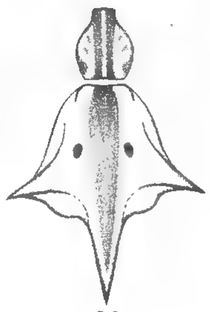

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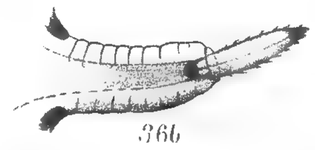

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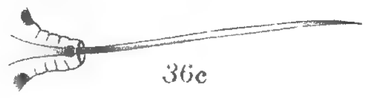

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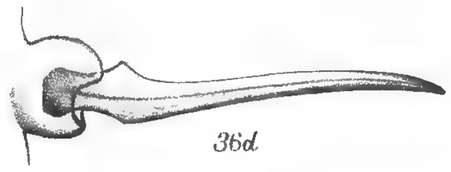

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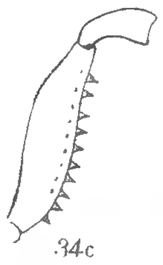

33a


33


36b


36c


36d


34c


36e


35a


37


38a


38


38b


36f



35


38c

1♀ MISUMENOPS GEORGIANUS.
2♂ " SPIRALIS
3,3a♂ " VOLUTUS.
4,4a♂ " PROSPER.
5,5a♀ " DAMNOSUS.
6♂ " SPINOSUS.
7♀ " PASCALIS.
8,8a♀ " AMERICANUS
9,9a♀ " " ,v. PALLENS.
10,10a,b♀ " DUBIUS.
11♂,12♀ XYSTICUS PELLAX.
13♂ XYSTICUS FACETUS.
14♀ SYNEMA GLOBOSUM.
15♀ " AFFINITATUM.
16♀ " " ,v. CULTUM.
17♂ " " ,v. POLITUM.
18♀ " PALLIATUM.
19♀ " BIMACULATUM.
20♂,21♀ " MACULOSUM.
22♂ " SOCIUM.
23♀ PARASYNEMA CIRRIPES.
24♀ TMARUS PIGER
25♀ " STUDIOSUS
26♂,27♀ TMARUS INTENTUS.
28♀ " INEPTUS.
29♀ " MUNDULUS.
30♀ " DECENS
31♀ " JOCOSUS.
32♀ " CORRUPTUS
33,33a♀ EPICADINUS TRIFIDUS.
34,34a-c♀ EPICADUS HETEROGASTER.
35,35a,b♂ ONOCOLUS PENTAGONUS.
36,36a-f♀ " "
37♂,38,38a-c♀ TOBIAS RUGOSUS.

E Wilson, Lith. Cambridge

## PLATE XI.

Fig. 1. *Metatobias stelloides*, ♀ : 1 *a*, femur and patella of right leg i.; 1 *b*, eyes from above; 1 *c*, eyes from in front; 1 *d*, vulva.

2. *Paratobias championi*, ♀ : 2 *a*, eyes from in front; 2 *b*, eyes from the side; 2 *c*, eyes from above; 2 *d*, femur of left leg i. from above; 2 *e*, vulva.

3. *Stephanopoides brasiliana*, ♂, eyes from in front; 3 *a*, eyes from above.

4. *Parastephanops cognatus*, ♀, eyes from in front.

5. *Isaloides putus*, ♀, from above, legs and palpi removed; 5 *a*, eyes from in front; 5 *b*, eyes from above and behind; 5 *c*, vulva.

6. *Majella affinis*, ♀, from above, legs and palpi removed; 6 *a*, vulva.

7. *Majella spinigera*, ♀, from above, legs and palpi removed; 7 *a*, eyes from above and in front; 7 *b*, maxillæ, labium, palpi, and mandibles, from below; 7 *c*, sternum and coxæ of legs.

8. *Strophius hirsutus*, ♀, eyes and mandibles from in front and above; 8 *a*, maxillæ, labium, and palpi, from beneath; 8 *b*, sternum and coxæ of legs.

9. *Toxeus centralis*, ♂, from above, legs and palpi removed; 9 *a*, sternum, coxæ of legs, maxillæ, and labium; 9 *b*, palpus from above.

10. *Toxeus centralis*, ♂, var., from above.

11. *Toxeus centralis*, ♀, vulva.

12. *Toxeus championi*, ♂, profile view, legs removed; 12 *a*, right palpus from the outside; 12 *b*, tarsus of palpus from the inside; 12 *c*, tarsus of palpus from the outside; 12 *d*, ditto from beneath; 12 *e*, *f*, right mandible from beneath, two views.

13. *Toxeus championi*, ♀, vulva.

14. *Martella pottsi*, ♂, left palpus from the outside (after Emerton).

15. *Martella pottsi*, ♀, vulva (after Emerton).

16. *Martella lineatipes*, ♀ : 16 *a*, vulva; 16 *b*, vulva, var.

17. *Simonella americana*, ♂, from above, legs and palpi removed; 17 *a*, right palpus from below; 17 *b*, ditto, another view; 17 *c*, ditto from the outside and above.

1,1a-d♀ METATOBIAS STELLOIDES.
2,2a-e♀ PARATOBIAS CHAMPIONI.
3,3a♂ STEPHANOPOIDES BRASILIANA.
4♀ PARASTEPHANOPS COGNATUS.
5,5a-c♀ ISALOIDES PUTUS.
6,6a♀ MAJELLA AFFINIS
7,7a-c♀ " SPINIGERA
8,8a,b♀ STROPHIUS HIRSUTUS.
9,9a,b♂ TOXEUS CENTRALIS
10♂ " " , *var.*
11♀ " "
12,12a-f♂ TOXEUS CHAMPIONI.
13♀
14♂,15♀ MARTELLA POTTSI.
16,16a,b♀ " LINEATIPES.
17,17a-c♂ SIMONELLA AMERICANA.

VOL. II.

## PLATE XII.

Fig. 1. *Simonella bicolor*, ♂: 1 *a*, profile view of spider, palpi and legs removed; 1 *b*, eyes from above and behind; 1 *c*, right palpus from the outside; 1 *d*, profile view of right mandible.

2. *Simonella bicolor*, ♀: 2 *a*, profile view, palpi and legs removed; 2 *b*, eyes from above and behind; 2 *c*, underside, showing sternum and coxæ and trochanters of legs iii. and iv.; 2 *d*, vulva.

3. *Simonella decipiens*, ♂: 3 *a*, profile; 3 *b*, left palpus, from the outside; 3 *c*, tibia and tarsus of left palpus from below.

4. *Simonella decipiens*, ♀: 4 *a*, vulva.

5. *Paradamœtas formicina*, ♂, left palpus from below (after Emerton).

6. *Paradamœtas formicina*, ♀: 6 *a*, left profile of carapace; 6 *b*, vulva (after Emerton); 6 *c*, vulva (after F. O. P. C.).

7. *Synageles variegata*, ♂, right palpus from below; 7 *a*, right palpus from outside and tibial spur, enlarged.

8. *Synageles variegata*, ♀: 8 *a*, left profile, legs and palpi removed; 8 *b*, sternum, coxæ, and trochanter of legs; 8 *c*, right leg of first pair, profile outside; 8 *d*, vulva.

9. *Keyserlingella cara*, ♂, left palpus, outside; 9 *a*, ditto from below (after Emerton).

10. *Erica eugenia*, ♂, right profile; 10 *a*, left palpus, outside; 10 *b*, bulb from beneath; 10 *c*, bulb, another view.

11. *Lyssomanes spiralis*, ♂: 11 *a*, right profile of spider; 11 *b*, sternum, mouth-parts, and coxæ of legs; 11 *c*, eyes from in front; 11 *d*, right palpus from the outside; 11 *e*, ditto from inside; 11 *f*, ditto from below; 11 *g*, ditto, another view; 11 *h*, left mandible from above; 11 *i*, ditto from below; 11 *j*, eyes from above and behind.

12. *Lyssomanes spinifer*, ♂, left palpus beneath; 12 *a*, ditto beneath from inside; 12 *b*, ditto from outside; 12 *c*, left mandible from beneath; 12 *d*, left palpus from beneath, another view; 12 *e*, ditto from inside, another view.

13. *Lyssomanes spinifer*, ♀, vulva, usual form; 13 *a*, ditto, variety.

14. *Lyssomanes elegans*, ♀, vulva.

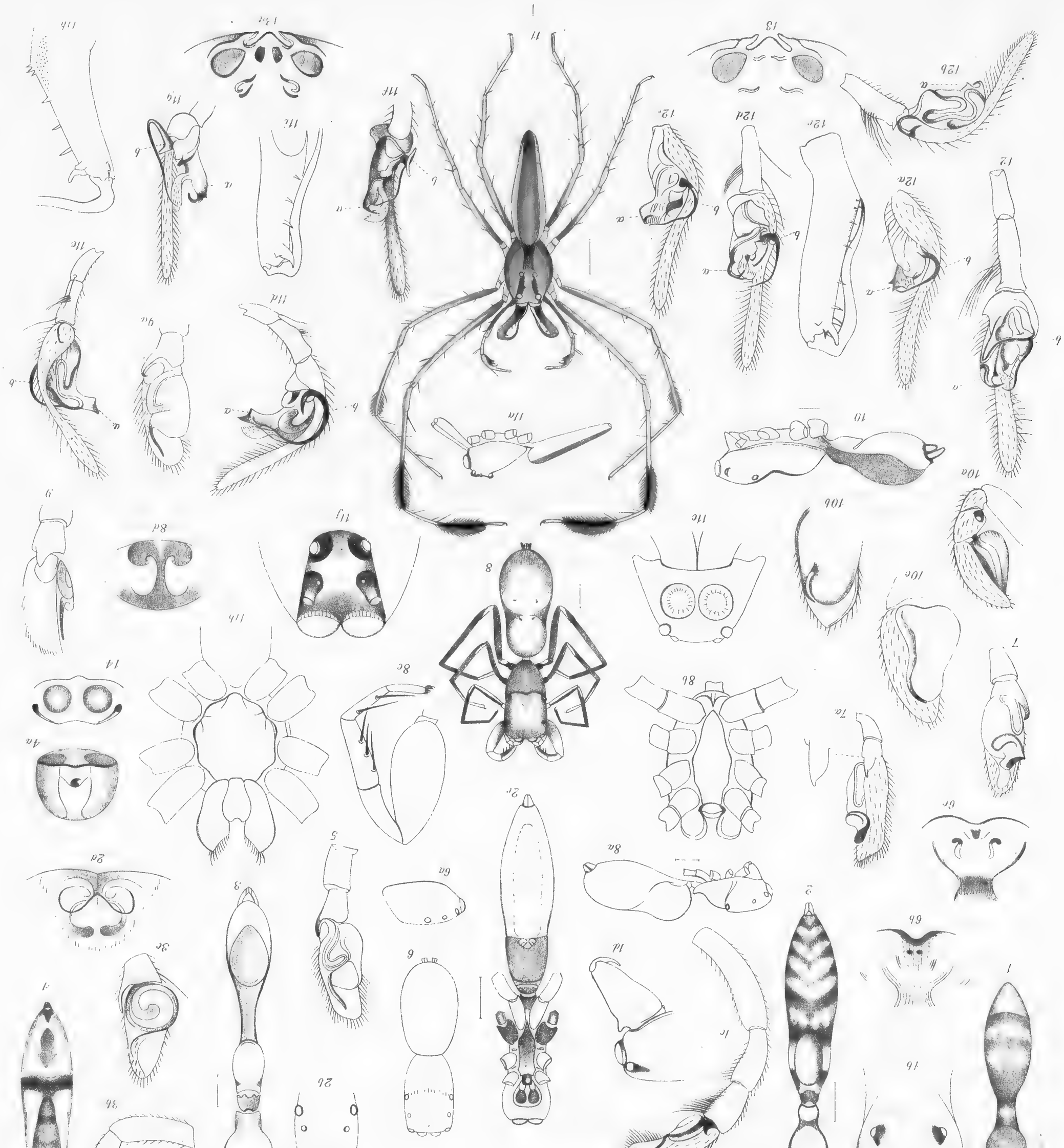
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Note.—The small letters signify corresponding portions of structure.

Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak
LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black

F.O.Pickard Cambridge, del. E Wilson, Cambridge

1. 1 ♂ SIMONELLA BICOLOR.
2. 2 ♀ " "
3. 3 ♂ " DECIPIENS.
4. 4 ♀ " "
5. PARADAMOETAS FORMICINA.
6. 6 ♀ PARADAMOETAS FORMICINA.
7. 7 ♂ SYNAGELES VARIEGATA.
8. 8 ♀ " "
9. 9 ♂ KEYSERLINGIELLA CARA.
10. 10 ♂ ERICA EUGENIA.
11. 11 ♂ LYSSOMANES SPIRALIS.
12. 12 ♀ " SPINIFER
13. 13 ♀ " "
14. ♀ " ELEGANS.



Black Centre etch.

Araneidae Uloboridae. Pl. II Tab. 12.

# PLATE XIII.

Fig. 1. *Lyssomanes patens*, ♂, palpus, left outside; 1 *a*, eyes and mandibles from in front (after Emerton).

2. *Lyssomanes patens*, ♀, eyes and mandibles from in front; 2 *a*, vulva (after Peckham).

3. *Lyssomanes protarsalis*, ♂, palpus, left inside; 3 *a*, ditto, outside; 3 *b*, mandible from below; 3 *c*, ditto from above.

4. *Lyssomanes simplicipes*, ♂, palpus, left outside; 4 *a*, ditto, beneath; 4 *b*, ditto, inside; 4 *c*, mandible from below; 4 *d*, ditto from above.

5. *Lyssomanes deinognathus*, ♂, palpus, left from below; 5 *a*, ditto, outside; 5 *b*, mandible from below; 5 *c*, ditto from above.

6. *Lyssomanes deinognathus*, ♀, vulva.

7. *Lyssomanes pachygnathus*, ♂, palpus, left below; 7 *a*, ditto, outside.

8. *Lyssomanes remotus*, ♂, palpus, left outside; 8 *a*, ditto, inside; 8 *b*, ditto, beneath; 8 *c*, mandible from below.

9. *Lyssomanes trifurcatus*, ♂, palpus, left inside; 9 *a*, ditto, outside; 9 *b*, mandible from below; 9 *c*, ditto from above.

10. *Lyssomanes trifurcatus*, ♀, vulva.

11. *Lyssomanes mandibulatus*, ♂, palpus, left below; 11 *a*, ditto, outside; 11 *b*, mandible from below; 11 *c*, ditto from above.

12. *Lyssomanes elegans*, ♀, spinners from above, (*x*) anal tubercle; 12 *a*, ditto from below; 12 *b*, vulva.

13. *Lyssomanes placidus*, ♂, palpus from below (after Peckham).

14. *Lyssomanes jemineus*, ♂, palpus from below (after Peckham).

15. *Lyssomanes jemineus*, ♀, vulva.

16. *Lyssomanes gracilis*, ♀, vulva.

17. *Lyssomanes blandus*, ♀, vulva (after Peckham).

18. *Asemonea flava*, ♀, vulva (after Peckham).

19. *Cobanus mandibularis*, ♂, palpus, left below; 19 *a*, mandible from in front.

20. *Cobanus extensus*, ♂, full figure; 20 *a*, palpus, left below; 20 *b*, ditto, outside; 20 *c*, tibial spur, enlarged; 20 *d*, palpus, outside, another view, with tibial spur enlarged; 20 *e*, mandible from below; 20 *f*, ditto, another view; 20 *g*, palpus from below.

21. *Cobanus extensus*, ♀, leg of first pair, left inside; 21 *a*, ditto, left outside.

Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
KODAK Color Control Patches © The Tiffen Company, 2000
Kodak LICENSED PRODUCT
Blue Cyan Green Yellow Red Magenta White 3/Color Black

F.O.Pickard Cambridge, del. E.Wilson, Cambridge.

1, 1a ♂ LYSSOMANES PATENS.
2, 2a ♀ " " 8, 8a–c ♂ LYSSOMANES REMOTUS. 14♂,15♀ LYSSOMANES JEMINEUS
3, 3a–c ♂ " PROTARSALIS. 10♀ " 9, 9a–c ♂ " TRIFURCATUS. 16♀ " GRACILIS
4, 4a–d ♂ " SIMPLICIPES. 11, 11a–c ♂ " " 17♀ " BILANDUS
5, 5a–c ♂ " DEINOGNATHUS. 12, 12a, b ♀ " MANDIBULATUS. 18♀ ASEMONEA FLAVA.
6 ♀ " " 13 ♂ " ELEGANS. 19, 19a ♂ COBANUS MANDIBULARIS.
7, 7a ♂ " PACHYGNATHUS " PLACIDUS. 20, 20a–g ♂ " EXTRINSUS
" " 21, 21a ♀

Arachnida Araneidea. Pl. II. Fig. 13

Black Centre etch.

## PLATE XIV.

Fig. 1. *Cobanus flavens*, ♂, palpus from beneath; 1 *a*, ditto, another view; 1 *b*, mandible from beneath; 1 *c*, palpus from the outside; 1 *d*, sternum and coxæ of legs.

2. *Cobanus flavens*, ♀, dorsal aspect, legs and palpi removed; 2 *a*, carapace and eyes, profile view; 2 *b*, carapace and eyes from above; 2 *c*, eyes and clypeus from in front; 2 *d*, mandible from beneath; 2 *e*, vulva; 2 *f*, ditto, that of a variety.

3. *Cobanus unicolor*, ♂, mandible from below; 3 *a*, palpus from the outside.

4. *Cobanus subfuscus*, ♂, mandible from below; 4 *a*, palpus from beneath.

5. *Amycus benignus*, ♂: 5 *a*, palpus from the inside; 5 *b*, ditto from the outside; 5 *c*, ditto from below; 5 *d*, mandible from beneath; 5 *e*, ditto with fang opened; 5 *f*, eyes of left side; 5 *g*, eyes and clypeus from in front; 5 *h*, sternum.

6. *Amycus benignus*, ♀: 6 *a*, carapace and eyes, profile view; 6 *b*, carapace and eyes from above; 6 *c*, leg i. from the outside; 6 *d*, ditto from the inside; 6 *e*, tarsus i., showing claws and claw-tufts; 6 *f*, spinners from below; 6 *g*, spinners from above; 6 *h*, vulva; 6 *i*, ditto, that of a variety.

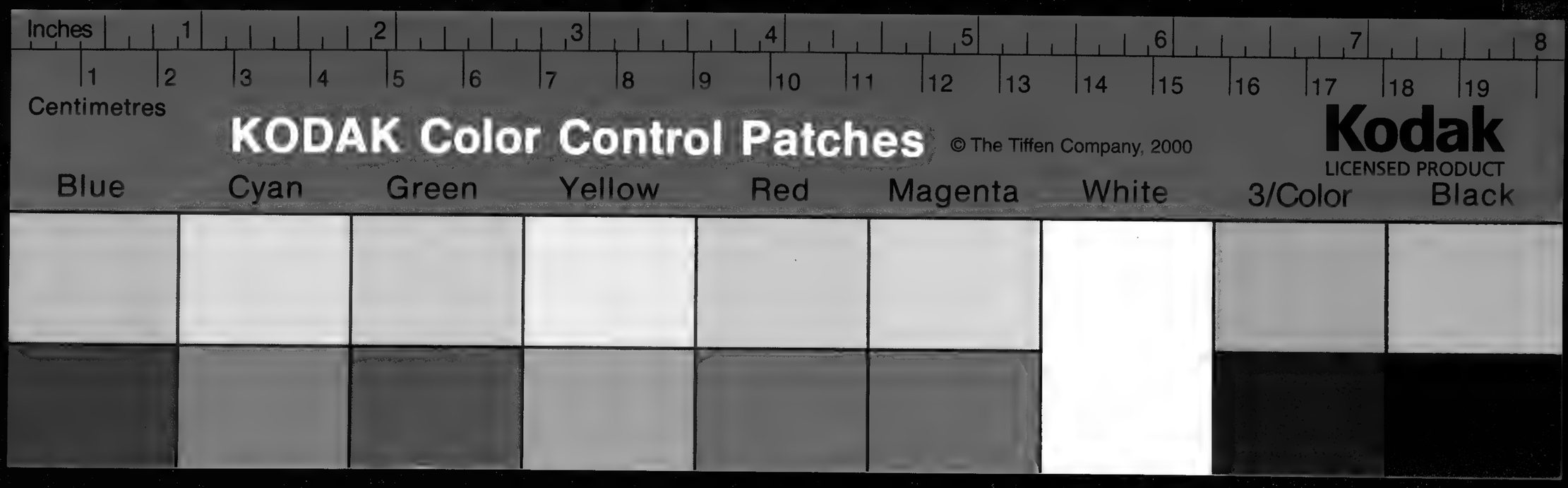
7. *Amycus quadriguttatus*, ♂: 7 *a*, palpus from the outside, with tibial spur enlarged; 7 *b*, mandible from below; 7 *c*, palpus from beneath.

8. *Amycus quadriguttatus*, ♀, dorsal aspect, legs and palpi removed; 8 *a*, vulva.

9. *Amycus hieroglyphicus*, ♂: 9 *a*, palpus from beneath, with spine of bulb enlarged; 9 *b*, palpus from the outside, with tibial spur enlarged; 9 *c*, mandibles from in front.

10. *Amycus hieroglyphicus*, ♀, vulva (after Emerton).

11. *Amycus palpinalis*, ♀: 11 *a*, palpus from beneath; 11 *b*, palpus from the outside, with tibial spur enlarged; 11 *c*, mandible from the side and from beneath; 11 *d*, ditto from in front; 11 *e*, eyes, clypeus, and mandibles from in front.



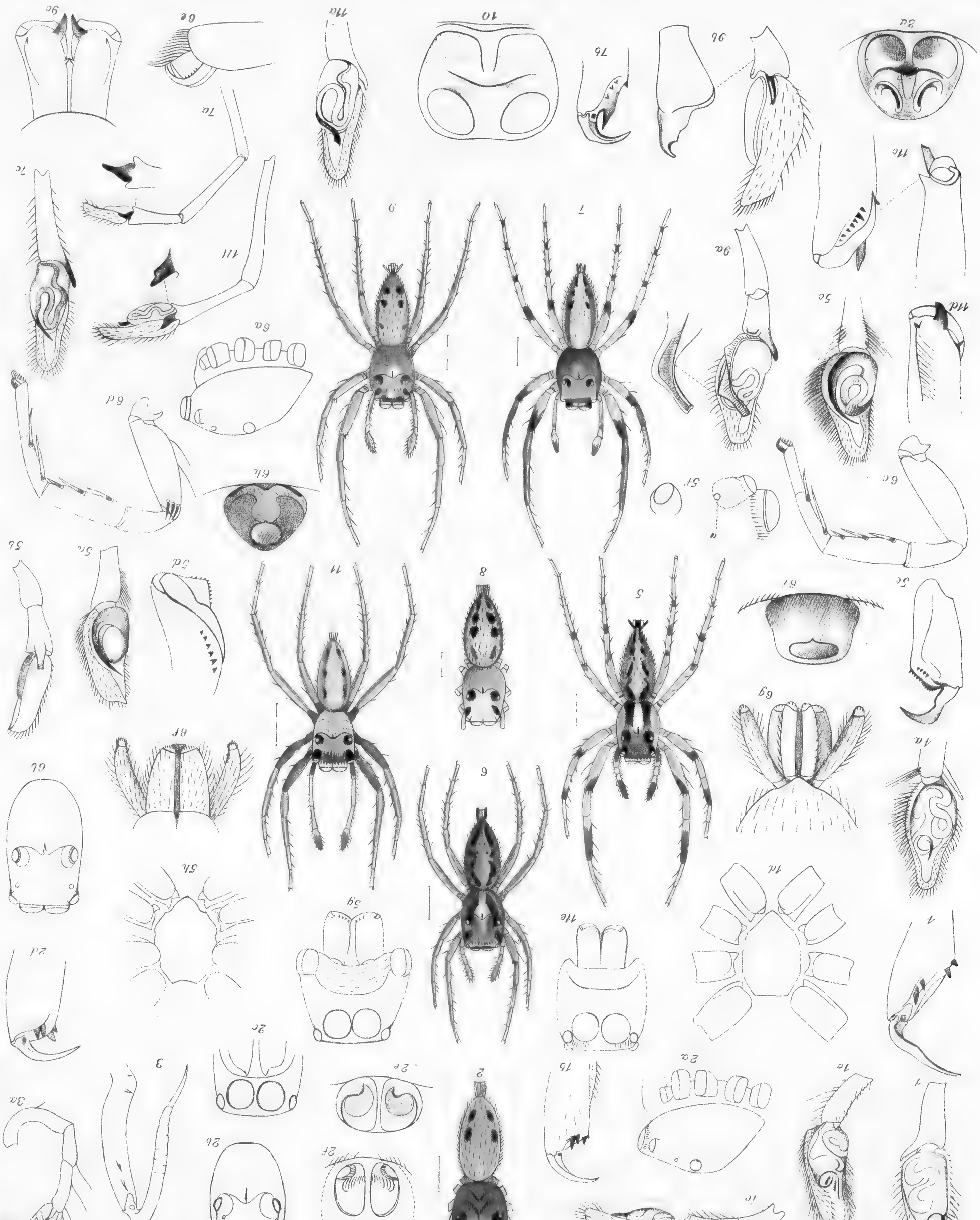

F.O.Pickard Cambridge,del.

E.Wilson, Cambridge

1,1a-d♂ COBANUS FLAVENS.
2,2a-f♀ " "
3,3a,♂ " UNICOLOR.
4,4a♂ " SUBFUSCUS.

5,5a-h♂ AMYCUS BENIGNUS.
6,6a-i♀ " "
7,7a-c♂ " QUADRIGUTTATUS.

8,8a♀ AMYCUS QUADRIGUTTATUS.
9,9a-c♂ " HIEROGLYPHICUS.
10♀ " "
11,11a-e♂ " PALPINALIS.



Thorell. Contr. Attm.

Clubionidæ Chrosiothecæ. Pl. II Tab. 14.

## PLATE XV.

Fig. 1. *Titanattus sævus*, ♂, palpus from beneath (after Peckham); 1 *a*, ditto, another example; 1 *b*, ditto from the outside; 1 *c*, mandible from in front; 1 *d*, ditto from below; 1 *e*, ditto from below, another view; 1 *f*, tibia of leg i. from below; 1 *g*, leg i. from the inner side; 1 *h*, leg iv. from below; 1 *i*, sternum; 1 *j*, eyes, clypeus, and mandibles from in front (after Peckham); 1 *k*, carapace in profile view; 1 *l*, eyes of left side a little from above *.

2. *Amycus spiralifer*, ♂, palpus from beneath; 2 *a*, ditto from the outer side; 2 *b*, ditto from the inner side; 2 *c*, eyes, clypeus, and mandibles from in front; 2 *d*, mouth-parts and mandible from beneath; 2 *e*, mandible from beneath.
3. *Amycus pacatus*, ♂, palpus from beneath; 3 *a*, ditto from the outer side.
4. *Amycus fallax*, ♂, palpus from the outer side (after Emerton).
5. *Amycus fallax*, ♀, vulva (after Emerton).
6. *Sidusa recondita*, ♂, palpus from beneath; 6 *a*, ditto, another view; 6 *b*, ditto from the outer side.
7. *Sidusa recondita*, ♀, dorsal view, legs removed; 7 *a*, vulva; 7 *b*, ditto from another example; 7 *c*, ditto from a third example; 7 *d*, ditto from a fourth example.
8. *Sidusa maxillosa*, ♂, palpus from beneath; 8 *a*, ditto from above; 8 *b*, ditto from the outer side; 8 *c*, mandible from beneath; 8 *d*, maxillæ and labium; 8 *e*, sternum.
9. *Sidusa maxillosa*, ♀, eyes from above; 9 *a*, ditto from in front; 9 *b*, carapace, profile view; 9 *c*, leg i. from the outer side; 9 *d*, leg i. from the inner side; 9 *e*, vulva.
10. *Sidusa marmorea*, ♀, dorsal view, legs removed; 10 *a*, vulva.
11. *Sidusa olivacea*, ♀, dorsal view, legs removed; 11 *a*, vulva.
12. *Sidusa pallida*, ♀, vulva.
13. *Sidusa dentichelis*, ♂, dorsal view, legs removed; 13 *a*, mandibles from beneath; 13 *b*, palpus from beneath.
14. *Sidusa minuta*, ♂, dorsal view, legs removed; 14 *a*, mandibles from beneath; 14 *b*, palpus from beneath.
15. *Sidusa nigropicta*, ♂, dorsal view, legs removed; 15 *a*, palpus from beneath; 15 *b*, ditto from the inner side; 15 *c*, ditto from the outer side; 15 *d*, mandible from beneath.

* The numbers are incorrectly given as 1, 1 *a–k* in the text.

Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
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Stoll Centr. ethn.

Chaetonota. Chaetodea. Vol. II. Tab. 15.

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## PLATE XVI.

Fig. 1. *Sidusa festiva*, ♂, left palpus from beneath; 1 *a*, ditto from above; 1 *b*, ditto from the inner side; 1 *c*, mandible from beneath; 1 *d*, sternum; 1 *e*, maxillæ and labium.

2. *Sidusa festiva*, ♀, leg i. from the outside; 2 *a*, ditto from the inner side; 2 *b*, eyes from above; 2 *c*, ditto from in front; 2 *d*, carapace and eyes in profile; 2 *e*, vulva; 2 *f*, ditto, immature example.

3. *Sidusa inermis*, ♂, left palpus from beneath; 3 *a*, ditto from the inner side; 3 *b*, mandible from beneath; 3 *c*, maxillæ and labium.

4. *Sidusa inermis*, ♀, carapace and eyes in profile; 4 *a*, vulva.

5. *Sidusa penicillata*, ♂, tibia and tarsus of palpus from the inner side; 5 *a*, ditto from the outer side; 5 *b*, mandible from beneath.

6. *Sidusa penicillata*, ♀ : 6 *a*, vulva; 6 *b*, ditto, immature form; 6 *c*, mandible from beneath.

7. *Sidusa vittata*, ♀ : 7 *a*, vulva; 7 *b*, ditto, variety.

8. *Sidusa nigrina*, ♀ : 8 *a*, vulva; 8 *b*, ditto, variety; 8 *c*, ditto, immature form.

9. *Sidusa albida*, ♀, vulva.

10. *Sidusa cristata*, ♂ : 10 *a*, right palpus from beneath; 10 *b*, ditto from the outside; 10 *c*, leg i. from the inner side.

11. *Sidusa spirorbis*, ♂ : 11 *a*, right palpus from below; 11 *b*, ditto from above; 11 *c*, leg i. from the inner side; 11 *d*, ditto from above, (*a*) shows the fringe on the tarsus; 11 *e*, leg iv. from above.

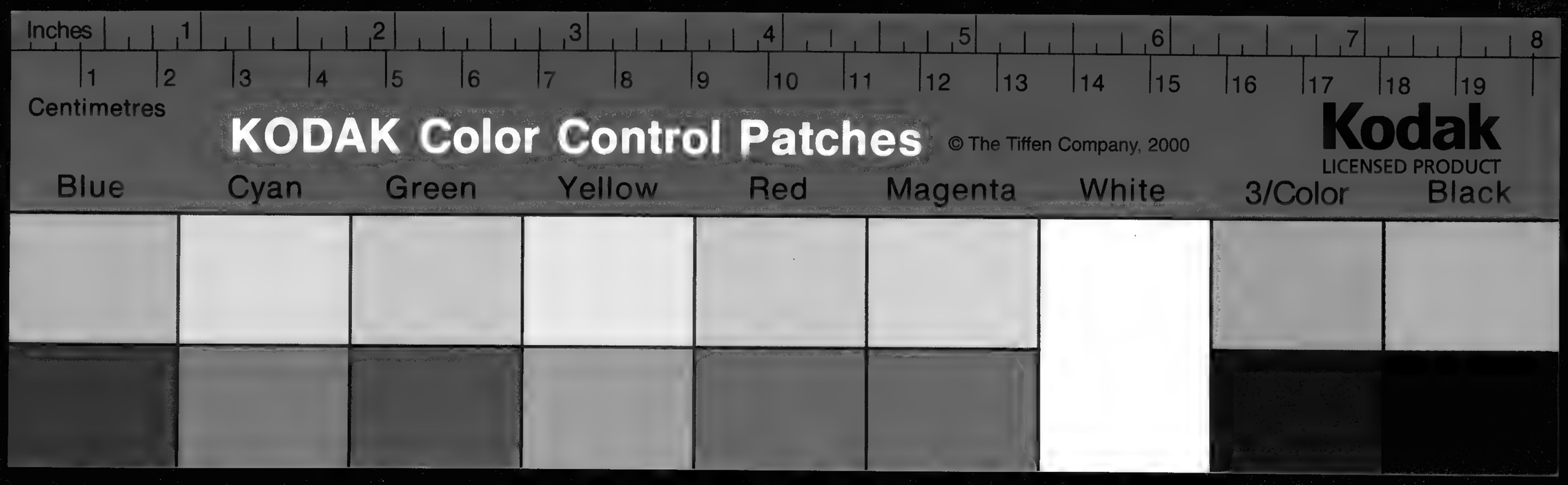
12. *Sidusa nigriventer*, ♂ : 12 *a*, ventral area of abdomen; 12 *b*, right palpus from beneath; 12 *c*, ditto from the outside; 12 *d*, left mandible from beneath.

13. *Sidusa nigriventer*, ♀, vulva.

14. *Sidusa murcida*, ♀ : 14 *a*, vulva.

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The small letters, unless otherwise stated, refer to similar portions of structure.

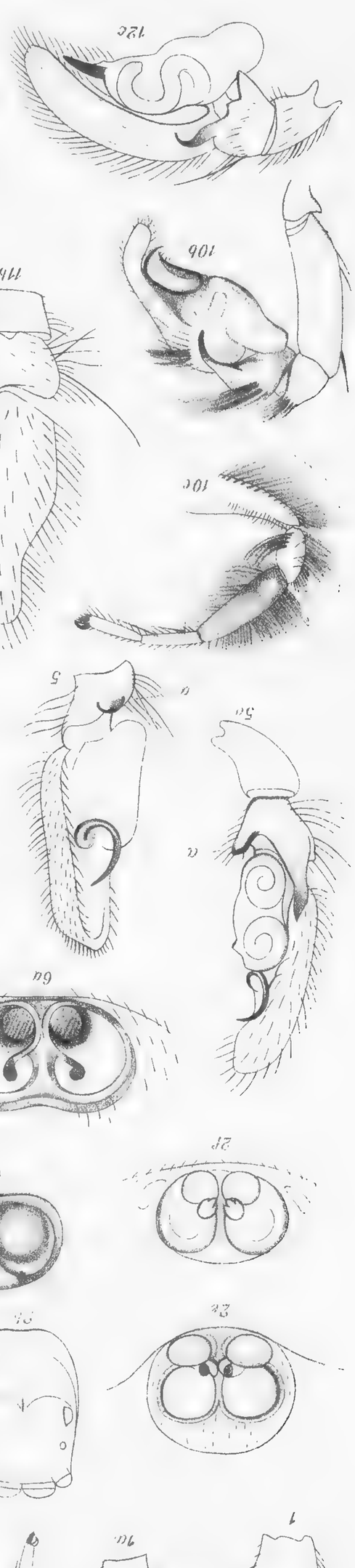



F O Pickard Cambridge, del. H Wilson, Cantabrigiæ.

1,1a-e ♂ SIDUSA FESTIVA.
2,2a-f ♀ ,, ,,
3,3a-c ♂ ,, INERMIS.
4,4a ♀ ,, ,,
5,5a,b ♂ ,, PENICILLATA.

6,6a-c ♀ SIDUSA PENICILLATA.
7,7a,b ♀ ,, VITTATA.
8,8a-c ♀ ,, NIGRINA.
9 ♀ ,, ALBIDA.

10,10a-c ♂ SIDUSA CRISTATA.
11,11a-e ♂ ,, SPIRORBIS.
12,12a-d ♂ ,, NIGRIVENTER.
13 ♀ ,, ,,
14,14a ♀ ,, MURCIDA.




Class Insecta Ordo Araneidea Tab II Cant 16

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# PLATE XVII.

Fig. 1. *Sidusa fulvoguttata*, ♀, dorsal view; 1 *a*, vulva.
2. *Sidusa albicincta*, ♂: 2 *a*, palpus from beneath; 2 *b*, mandible from beneath; 2 *c*, palpus from beneath, variety; 2 *d*, eyes from the left side.
3. *Sidusa albicincta*, ♀, vulva; 3 *a*, ditto, variety or immature.
4. *Sidusa parvula*, ♂, palpus from beneath.
5. *Sidusa parvula*, ♀, vulva.
6. *Sidusa conspecta*, ♂: 6 *a*, mandible from beneath; 6 *b*, palpus from beneath; 6 *c*, eyes from the left side.
7. *Sidusa conspecta*, ♀: 7 *a*, carapace and eyes, profile; 7 *b*, ditto from in front; 7 *c*, ditto from above; 7 *d*, leg i. from the inner side; 7 *e*, leg i. from the outer side; 7 *f*, vulva; 7 *g*, ditto, variety or immature.
8. *Sidusa alacris*, ♀, dorsal view, legs removed; 8 *a*, vulva.
9. *Sidusa circumcincta*, ♀, vulva.
10. *Sidusa quadriguttata*, ♀, dorsal view, legs removed; 10 *a*, vulva.
11. *Sidusa brevispina*, ♂: 11 *a*, spinners, from above (*a*, anterior pair; *c*, central pair; *p*, posterior pair; *x*, anal tubercle); 11 *b*, eyes from the left side; 11 *c*, palpus from beneath.
12. *Sidusa brevispina*, ♀, vulva.
13. *Sidusa lutea*, ♂, palpus from beneath.
14. *Sidusa spiralis*, ♂: 14 *a*, right palpus from the outer side; 14 *b*, ditto from beneath; 14 *c*, ditto from the outer side, another view; 14 *d*, ditto, variety, from beneath; 14 *e*, mandible from beneath.
15. *Sidusa voluta*, ♀, vulva; 15 *a*, ditto, variety.
16. *Sidusa sulphurea*, ♂, palpus from beneath; 16 *a*, ditto from the outer side.
17. *Sidusa sulphurea*, ♀, dorsal view, legs removed; 17 *a*, vulva; 17 *b*, ditto, variety.

Inches 1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Centimetres
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1,1 a ♀ SIDUSA FULVOGUTTATA.
2,2 a-l ♂ " ALBICINCTA.
3,3 a ♀ " "
4♂,5 ♀ " PARVULA.
6,6 a-c ♂ " CONSPECTA.

7,7 a-g ♀ SIDUSA CONSPECTA.
8,8 a ♀ " ALACRIS.
9 ♀ " CIRCUMCINCTA.
10,10 a ♀ " QUADRIGUTTATA.
11,11 a-c ♂ " BREVISPINA.
12 ♀ " "

13 ♂ SIDUSA LUTEA.
14,14 a-g ♂ " SPIRALIS.
15,15 a ♀ " VOLUTA.
16,16 a ♂ " SULPHUREA.
17,17 a,b ♀ " "

F.O.Pickard Cambridge, del.

E.Wilson, Cambridge

*Brad Centr. Arm.* *Arachnida Araneidea Pl. II Tab. 17*

# PLATE XVIII.

Fig. 1. *Sidusa flavida*, ♂ : 1 *a*, palpus from beneath.
2. *Sidusa flavida*, ♀ , vulva.
3. *Sidusa binotata*, ♂ , palpus from beneath.
4. *Sidusa excavata*, ♂ , palpus from beneath; 4 *a*, mandibles from above; 4 *b*, ditto from beneath.
5. *Sidusa opima*, ♂ , palpus from beneath.
6. *Sidusa opima*, ♀ , vulva.
7. *Pensacola signata*, ♂ : 7 *a*, palpus from beneath; 7 *b*, mandibles and eyes from in front; 7 *c*, mandible from above; 7 *d*, ditto from beneath; 7 *e*, maxillæ and right mandible from beneath; 7 *f*, right mandible from in front and above.
8. *Pensacola sylvestris*, ♂ , palpus from beneath; 8 *a*, ditto from the inner side; 8 *b*, tarsus and apex of tibia of ditto from the outer side; 8 *c*, eyes and mandibles from in front.
9. *Pensacola radians*, ♀ , vulva.
10. *Pardessus mimicus*, ♀ , dorsal view, legs removed; 10 *a*, vulva.
11. *Pardessus graciosus*, ♀ , dorsal view, legs removed; 11 *a*, vulva.
12. *Cyrene regia*, ♂ : 12 *a*, palpus from beneath; 12 *b*, ditto from the side, showing tibial spur at (*b*); 12 *c*, ditto from above; 12 *d*, ditto from above, another view; 12 *e*, mandible from beneath; 12 *f*, carapace and eyes from above; 12 *g*, sternum.
13. *Cyrene regia*, ♀ : 13 *a*, eyes from in front; 13 *b*, carapace and eyes, profile view; 13 *c*, leg i. from the inner side; 13 *d*, vulva.
14. *Cyrene longispina*, ♂ , dorsal view, legs removed; 14 *a*, palpus from beneath; 14 *b*, ditto from above, showing tibial spur (*a*); 14 *c*, ditto from the outer side, another view; 14 *d*, ditto from the outer side and somewhat beneath.
15. *Cyrene bilobata*, ♂ , palpus from beneath, showing tibial spur (*a*); 15 *a*, ditto from the outer side; 15 *b*, ditto, showing bilobate bulb; 15 *c*, ditto from the outer side, another view; 15 *d*, mandible from beneath.
16. *Cyrene bulbosa*, ♂ , palpus from the inner side; 16 *a*, tibia of ditto, showing the spur; 16 *b*, ditto from beneath; 16 *c*, femur and patella of ditto; 16 *d*, mandible from beneath.

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The small letters, unless otherwise stated, refer to similar portions of structure.

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Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
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1,1a ♂ SIDUSA FLAVIDA. 7,7a-f ♂ PENSACOLA SIGNATA. 12,12a-g ♂ CYRENE REGIA.
2 ♀ ,, ,, 8,8a-c ♂ ,, SYLVESTRIS. 13,13a-d ♀ ,, ,,
3 ♂ ,, BINOTATA 9 ♀ ,, RADIANS. 14,14a-d ♂ ,, LONGISPINA.
4,4a,b ♂ ,, EXCAVATA 10,10a ♀ PARDESSUS MIMICUS. 15,15a-d ♂ ,, BILOBATA
5 ♂,6 ♀ ,, OPIMA. 11,11a ♀ ,, GRATIOSUS. 16,16a-d ♂ ,, BULBOSA

F.O.Pickard-Cambridge, del. F.Wilson, Lith. Edinburgh

Trans. Linn. Soc. Vol. II. Pl. 18. Araneidea of Dorset.

# PLATE XIX.

Fig. 1. *Cyrene prominens*, ♂, palpus from beneath; 1 *a*, ditto from above; 1 *b*, ditto, variety, from beneath; 1 *c*, ditto, variety, from above, showing the tibial spur; 1 *d*, ditto from the outer side; 1 *e*, mandible from beneath.

2. *Cyrene prominens*, ♀, dorsal view, legs removed; 2 *a*, vulva.

3. *Cyrene curvispina*, ♂, dorsal view, legs removed; 3 *a*, palpus from beneath; 3 *b*, ditto from the outer side, showing the tibial spur; 3 *c*, tibial spur enlarged.

4. *Cyrene pratensis*, ♂, dorsal view, legs removed; 4 *a*, palpus from beneath; 4 *b*, ditto from the outer side; 4 *c*, mandible from beneath; 4 *d*, carapace and eyes from above; 4 *e*, sternum.

5. *Cyrene pratensis*, ♀, dorsal view, legs removed; 5 *a*, ditto, variety; 5 *b*, femur of leg i. from above; 5 *c*, vulva; 5 *d*, ditto, malformed variety.

6. *Cyrene grisea*, ♂, dorsal view, legs removed; 6 *a*, palpus from beneath; 6 *b*, ditto from the outer side; 6 *c*, mandible from beneath.

7. *Cyrene bifida*, ♂, dorsal view, legs removed; 7 *a*, palpus from beneath; 7 *b*, ditto, showing apex of bulb enlarged; 7 *c*, ditto from the outer side; 7 *d*, mandible from beneath.

8. *Cyrene rustica*, ♂, dorsal view, legs removed; 8 *a*, palpus from beneath; 8 *b*, ditto, another view; 8 *c*, ditto from above, showing the tibial spur at (*b*); 8 *d*, mandible from beneath.

9. *Cyrene rustica*, ♀, vulva (after Peckham).

10. *Cyrene minuta*, ♂, dorsal view, legs removed; 10 *a*, palpus from beneath, showing apical formation at (*a*); 10 *b*, ditto from above, showing the tibial spur at (*b*); 10 *c*, ditto from the outer side.

11. *Cyrene bifurcata*, ♂, dorsal view, legs removed; 11 *a*, palpus from beneath; 11 *b*, ditto from the outer side, showing the tibial spur at (*b*).

12. *Cyrene maculatipes*, ♂: 12 *a*, palpus from beneath; 12 *b*, ditto from the outer side; 12 *c*, ditto, showing the tibial spur enlarged; 12 *d*, ditto, another view.

13. *Cyrene emarginata*, ♀, dorsal view, legs removed; 13 *a*, vulva.

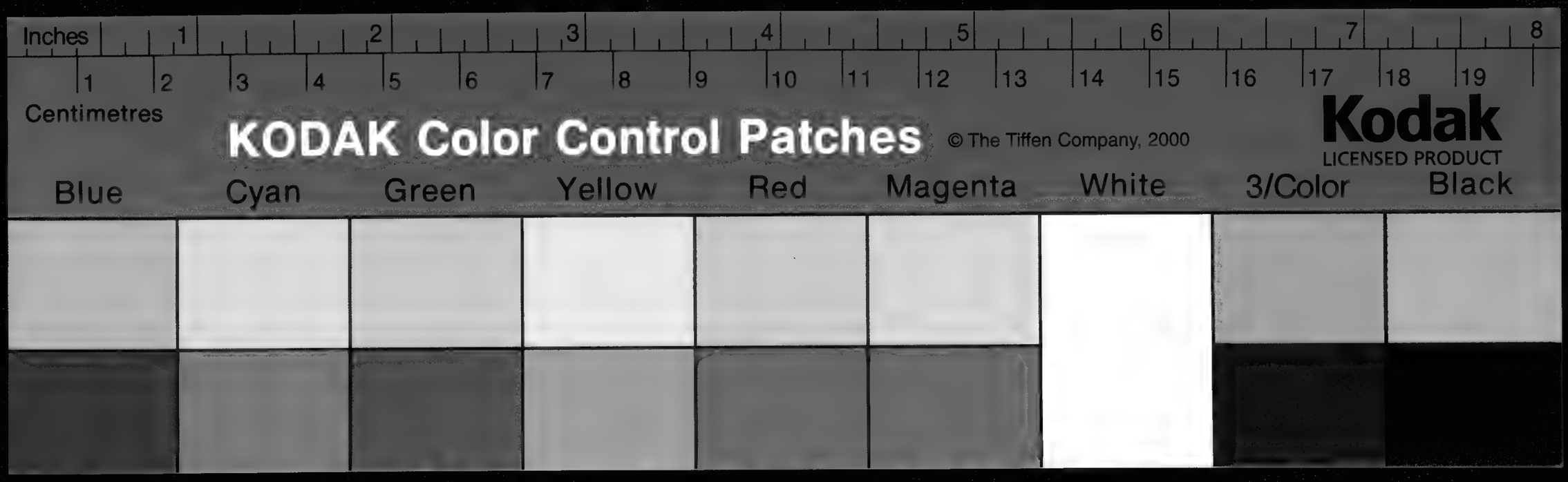
14. *Cyrene infuscata*, ♀, dorsal view, legs removed; 14 *a*, vulva.

15. *Cyrene bicavata*, ♀, dorsal view, legs removed; 15 *a*, vulva.

16. *Cyrene albosignata*, ♀, dorsal view, legs removed; 16 *a*, vulva.

17. *Cyrene hieroglyphica*, ♀, dorsal view, legs removed; 17 *a*, vulva.

18. *Cyrene flava*, ♀, dorsal view, legs removed; 18 *a*, vulva.




F O Pickard Cambridge, del.

*Black Gemm. etchn.*

*Otiocnemidæ otiomeidæ. Pl II Sub fig 79*

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## PLATE XX.

Fig. 1. *Cyrene bisignata*, ♀, dorsal view, legs removed; 1 *a*, vulva.
2. *Cyrene mediocava*, ♀, dorsal view, legs removed; 2 *a*, vulva.
3. *Cyrene laticava*, ♀, dorsal view, legs removed; 3 *a*, vulva.
4. *Cyrene simplicicava*, ♀, dorsal view, legs removed; 4 *a*, vulva; 4 *b*, ditto, variety.
5. *Cyrene pallida*, ♀, dorsal view, legs removed; 5 *a*, vulva.
6. *Cyrene fusca*, ♀, dorsal view, legs removed; 6 *a*, tibia iv. from beneath; 6 *b*, sternum; 6 *c*, vulva.
7. *Cyrene elegans*, ♀, dorsal view, legs removed; 7 *a*, vulva.
8. *Cyrene bicuspidata*, ♂, dorsal view, legs removed; 8 *a*, palpus from beneath; 8 *b*, ditto from above, showing tibial spur.
9. *Cyrene bicuspidata*, ♀, dorsal view, legs removed; 9 *a*, vulva.
10. *Cyrene delecta*, ♂, dorsal view, legs removed; 10 *a*, palpus from beneath; 10 *b*, ditto from the outer side; 10 *c*, mandible from beneath.
11. *Cyrene delecta*, ♀, dorsal view; 11 *a*, vulva; 11 *b*, ditto, variety.
12. *Cyrene aprica*, ♂, palpus from the outer side; 12 *a*, ditto from beneath; 12 *b*, ditto from the outer side, another view.
13. *Cyrene aprica*, ♀, dorsal view, legs removed; 13 *a*, vulva (after Emerton).
14. *Cyrene interrupta*, ♀, dorsal view, legs removed; 14 *a*, leg i. from the inner side; 14 *b*, vulva; 14 *c*, ditto, variety; 14 *d*, ditto, another variety.
15. *Cyrene flavescens*, ♀, dorsal view, legs removed; 15 *a*, vulva.
16. *Cyrene dybowskii*, ♂, palpus from beneath.
17. *Cyrene dybowskii*, ♀, dorsal view; 17 *a*, vulva.
18. *Cyrene niveoguttata*, ♂, palpus from beneath; 18 *a*, ditto from the outer side; 18 *b*, mandible from beneath.
19. *Cyrene niveoguttata*, ♀, dorsal view, legs removed; 19 *a*, vulva.
20. *Cyrene geminata*, ♀, vulva.
21. *Thotmes paykulli*, ♂, dorsal view, legs removed; 21 *a*, palpus from beneath; 21 *b*, ditto from the inner side; 21 *c*, ditto from the outer side; 21 *d*, carapace from above; 21 *e*, sternum.
22. *Thotmes fannæ*, ♂, dorsal view; 22 *a*, palpus from beneath.

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Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
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1, 1a, ♀ CYRENE BISIGNATA
2, 2a ♀ „ MEDIOCAVA.
3, 3a ♀ „ LATICAVA.
4, 4a, b ♀ „ SIMPLICICAVA.
5, 5a ♀ „ PALLIDA.
6, 6a-c ♀ „ FUSCA.
7, 7a ♀ „ ELEGANS.

8, 8a, b ♂ CYRENE BICUSPIDATA.
9, 9a ♀ „ „
10, 10a-c ♂ „ DELECTA.
11, 11a, b ♀ „ „
12, 12a, b ♂ „ APRICA
13, 13a ♀ „ „
14, 14a-d ♀ „ INTERRUPTA.
15, 15a ♀ „ FLAVESCENS.

16 ♂ CYRENE DYBOWSKII
17, 17a ♀ „ „
18, 18a, b ♂ „ NIVEOGUTTATA.
19, 19a ♀ „ „
20 ♀ „ GEMINIPA.
21, 21a-e ♂ THOTMES PAYKULLI.
22, 22a ♂ „ FANNAE.



*Black Centr. ctm.* *Arachnida Araneidea Pl II Stde 20*

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## PLATE XXI.

Fig. 1. *Habronattus mexicanus*, ♂: 1 *a*, palpus from above; 1 *b*, ditto from the outer side; 1 *c*, ditto from beneath; 1 *d*, tibia of ditto; 1 *e*, femur and patella of leg i.; 1 *f*, tibia of left leg from beneath; 1 *g*, femur and patella of leg iii. from in front; 1 *h*, ditto from behind.

2. *Habronattus mexicanus*, ♂, variety, dorsal view, legs removed.
3. *Habronattus mexicanus*, ♀: 3 *a*, vulva; 3 *b*, ditto, variety.
4. *Habronattus viridipes*, ♂, tarsus of palpus from beneath; 4 *a*, ditto from the outer side; 4 *b*, tibia and tarsus of ditto from above.
5. *Habronattus viridipes*, ♀, dorsal view, legs removed; 5 *a*, tibia of leg i. from the inner side; 5 *b*, vulva.
6. *Habronattus belligerus*, ♀, dorsal view, legs removed; 6 *a*, vulva. (After Emerton.)
7. *Habronattus latens*, ♀, vulva. (After Emerton.)
8. *Habronattus paratus*, ♂: 8 *a*, palpus from beneath. (After Emerton.)
9. *Habronattus zebraneus*, ♀, dorsal view, legs removed; 9 *a*, vulva.
10. *Habronattus perfidus*, ♂, dorsal view, legs removed; 10 *a*, tibia and tarsus of palpus from beneath.
11. *Colonus puerperus*, ♂: 11 *a*, tibia and tarsus of palpus from beneath; 11 *b*, ditto from the outer side; 11 *c*, maxilla; 11 *d*, mandible from beneath.
12. *Colonus puerperus*, ♀: 12 *a*, mandible from beneath; 12 *b*, spinners from above; 12 *c*, tibia of leg i. from beneath; 12 *d*, vulva; 12 *e*, ditto, variety.
13. *Colonus crucifer*, ♀, vulva.
14. *Epinga ornata*, ♂, tibia and tarsus of palpus from beneath; 14 *a*, sternum.
15. *Epinga ornata*, ♀: 15 *a*, vulva; 15 *b*, protarsus from beneath.
16. *Epinga ornata*, ♀, variety, dorsal view, legs removed.
17. **Marpissa muscosa*, ♀, carapace and eyes from above; 17 *a*, sternum; 17 *b*, leg i. from the outer side; 17 *c*, spinners from beneath.
18. *Marpissa melanognatha*, ♂, tibia and tarsus of palpus from beneath; 18 *a*, ditto from the outer side; 18 *b*, ditto, variety; 18 *c*, ditto from the inner side; 18 *d*, mandible; 18 *e*, ditto, variety.
19. *Marpissa melanognatha*, ♀, dorsal view, legs removed; 19 *a*, sternum; 19 *b*, vulva; 19 *c*, ditto, from an example not fully mature.

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* NOTE.—The species marked with an asterisk is not a Central-American form. Figures of its essential characters are inserted for the purposes of comparison.

Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
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1,1*a*-*h* ♂ HABRONATTUS MEXICANUS.
2 ♂ ,, ,, ,*var.*
3,3*a*,*b* ♀ ,, ,, VIRIDIPES.
4,4*a*,*b* ♂ ,, ,,
5,5*a*,*b* ♀ ,, ,, BELLIGERUS.
6,6*a* ♀ ,, ,,

7♀ HABRONATTUS LATENS.
8,8*a* ♂ ,, PARATUS.
9,9*a* ♀ ,, ZEBRANEUS.
10,10*a* ♂ ,, PERFIDUS.
11,11*a*-*d* ♂ COLONUS PUERPERUS.
12,12*a*-*e* ♀ ,, CRUCIFER.
13 ♀ ,,

14,14*a* ♂ EPINGA ORNATA.
15,15*a*,*b* ♀ ,, ,,
16 ♀ ,, ,,*var.*
17,17*a*-*c* ♀ MARPISSA MUSCOSA.
18,18*a*-*e* ♂ ,, MELANOGNATHA.
19,19*a*-*c* ♀ ,, ,,

*Black Centre ethn.* *Arachnida Araneidea. Vol II Tab. 21*

VOL. II.

## PLATE XXII.

Fig. 1. *Marpissa familiaris*, ♂, palpus from beneath. (After Peckham.)
2. *Marpissa familiaris*, ♀, dorsal view, legs removed; 2 *a*, vulva. (After Peckham.)
3. *Marpissa magna*, ♂, palpus from beneath; 3 *a*, bulb of palpus, another view; 3 *b*, palpus from the outer side; 3 *c*, mandible from beneath.
4. *Marpissa magna*, ♀: 4 *a*, vulva.
5. *Marpissa minor*, ♂, palpus from beneath; 5 *a*, ditto from the outer side.
6. *Marpissa minor*, ♀, dorsal view, legs removed.
7. *Marpissa melanura*, ♀, dorsal view, legs removed; 7 *a*, tibia i. from beneath, inner side at (*a*); 7 *b*, vulva; 7 *c*, ditto, variety.
8. *Phanias flavostriatus*, ♀, sternum; 8 *a*, protarsus iv. from beneath; 8 *b*, vulva.
9. *Metacyrba tæniola*, ♂, palpus from beneath.
10. *Metacyrba tæniola*, ♀, leg i. from the outer side; 10 *a*, protarsus iv. from beneath; 10 *b*, vulva.
11. *Paramarpissa tibialis*, ♂, carapace from above; 11 *a*, palpus from the outer side and beneath; 11 *b*, ditto from beneath; 11 *c*, ditto from the inner side; 11 *d*, leg i. from the inner side.
12. *Cheliferoides segmentatus*, ♂: 12 *a*, carapace from above; 12 *b*, sternum; 12 *c*, palpus from the outer side beneath; 12 *d*, ditto from the outer side; 12 *e*, leg i. from the inner side; 12 *f*, anal tubercle from above.
13. *Rudra geniculata*, ♀: 13 *a*, carapace from above; 13 *b*, sternum; 13 *c*, leg i. from the inner side; 13 *d*, tibia and protarsus iv. from beneath; 13 *e*, vulva.
14. *Rudra polita*, ♀, vulva. (After Emerton.)
15. *Anoka grenada*, ♂, dorsal view, legs removed; 15 *a*, ditto, variety; 15 *b*, sternum; 15 *c*, maxillæ; 15 *d*, mandibles from above; 15 *e*, palpus from beneath; 15 *f*, ditto from the outer side; 15 *g*, mandible from beneath; 15 *h*, leg iv. from beneath; 15 *i*, leg i. from the inner side.
16. *Anoka fimbriata*, ♂, maxillæ; 16 *a*, mandibles from above; 16 *b*, bulb of palpus from beneath; 16 *c*, ditto, another view; 16 *d*, tibia of palpus from the outer side.

Inches 1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Centimetres
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13,2,2,2♀ MARPISSA FAMILIARIS. 8,8a,b♀ PHANIAS FLAVOSTRIATUS. 12,12a-f♂ CHELIFEROIDES SEGMENTATUS.
3,3 a-c♂ " MAGNA. 9♂ METACYRBA TENIOLA. " 13,13a-e♀ RUDRA GENICULATA.
4,4 a♀ " " 10,10a,b♀ " " 14♀ " POLITA.
5,5 a♂3,6♀ " MINOR. 11,11a-d♂ PARAMARPISSA TIBIALIS. 15,15a-i♂ ANOKA GRENADA.
7,7 a-c♀ " MELANURA. " 16,16a-d♂ " FIMBRIATA.

Biol. Centr. amer.

Arachnida Araneidea. Vol. II. Tab. 22.

# PLATE XXIII.

Fig. 1. *Ashtabula dentata*, ♂, carapace and eyes; 1 *a*, sternum and maxillæ; 1 *b*, mandible from beneath; 1 *c*, palpus from beneath; 1 *d*, ditto from the outer side; 1 *e*, leg i. from the outer side.

2. *Ashtabula nigricans*, ♂, carapace and eyes; 2 *a*, palpus from beneath; 2 *b*, palpal spine enlarged; 2 *c*, ditto from the outer side; 2 *d*, mandible from beneath; 2 *e*, leg i. from the inner side.

3. *Ashtabula nigricans*, ♀, leg i. from the inner side.

4. *Metaphidippus mandibulatus*, ♂, palpus from beneath; 4 *a*, ditto from the outer side; 4 *b*, mandible from beneath; 4 *c*, ditto from beneath, another view; 4 *d*, ditto from above; 4 *e*, maxilla.

5. *Metaphidippus nitidus*, ♂, mandible from beneath.

6. *Metaphidippus nitidus*, ♀, vulva.

7. *Metaphidippus tridentatus*, ♂: 7 *a*, palpus from beneath; 7 *b*, mandible from beneath.

8. *Metaphidippus octonotatus*, ♂: 8 *a*, palpus from beneath; 8 *b*, ditto from the outer side; 8 *c*, mandible from beneath.

9. *Metaphidippus octonotatus*, ♀, dorsal view, legs removed; 9 *a*, vulva.

10. *Metaphidippus felix*, ♂, dorsal view, legs removed; 10 *a*, palpus from beneath; 10 *b*, mandible from beneath.

11. *Metaphidippus dentiger*, ♂, palpus from beneath; 11 *a*, tibia of palpus, showing spur; 11 *b*, mandible from beneath.

12. *Metaphidippus longipalpus*, ♂: 12 *a*, palpus from beneath; 12 *b*, ditto from the inner side; 12 *c*, mandible from beneath.

13. *Metaphidippus globosus*, ♂, dorsal view, legs removed; 13 *a*, palpus from beneath; 13 *b*, ditto from the outer side; 13 *c*, mandible from beneath.

14. *Metaphidippus maxillosus*, ♂: 14 *a*, palpus from the outer side; 14 *b*, palpal spine enlarged; 14 *c*, palpus from beneath; 14 *d*, mandible from beneath.

15. *Metaphidippus apicalis*, ♂: 15 *a*, palpus from beneath; 15 *b*, mandible from beneath; 15 *c*, tibia i. from beneath; 15 *d*, patella, tibia, and protarsus i. from the inner side.

16. *Metaphidippus apicalis*, ♀, dorsal view, legs removed; 16 *a*, vulva.

Inches 1 2 3 4 5 6 7 8
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Centimetres
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1,1a-e ♂ ASHTABULA DENTATA. 7,7a,b ♂ METAPHIDIPPUS TRIDENTATUS. 12,12a-c ♂ METAPHIDIPPUS LONGIPALPUS.
2,2a-e ♂ " NIGRICANS. 8,8a-c ♂ " OCTONOTATUS. 13,13a-c ♂ " GLOBOSUS
3 ♀ " " 9,9a ♀ " " 14,14a-d ♂ " MAXILLOSUS.
4,4a-e ♂ METAPHIDIPPUS MANDIBULATUS. 10,10a,b ♂ " FELIX. 15,15a-d ♂ " APICALIS.
5,5a,6 ♀ " NITIDUS. 11,11a,b ♂ " DENTIGER. 16,16a ♀ "

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## PLATE XXIV.

Fig. 1. *Metaphidippus bispinosus*, ♂, palpus from the outer side; 1 *a*, ditto from beneath; 1 *b*, mandible from beneath.

2. *Metaphidippus bispinosus*, ♀, dorsal view, legs removed; 2 *a*, vulva; 2 *b*, ditto, variety.

3. *Metaphidippus lanceolatus*, ♂: 3 *a*, mandible from beneath; 3 *b*, ditto, another view; 3 *c*, ditto from above; 3 *d*, palpus from beneath.

4. *Metaphidippus levispinus*, ♂: 4 *a*, palpus from the inner side; 4 *b*, ditto from the outer side; 4 *c*, mandible from beneath.

5. *Metaphidippus lætabilis*, ♂: 5 *a*, palpus from beneath; 5 *b*, eyes and mandibles from in front. (Our figures are taken from Peckham's work.)

6. *Metaphidippus dubitabilis*, ♀, vulva. (After Peckham.)

7. *Metaphidippus furcillatus*, ♂, dorsal view, legs removed; 7 *a*, palpus from beneath; 7 *b*, tibia of ditto from the outer side.

8. *Metaphidippus furcatus*, ♂, palpus from beneath; 8 *a*, tibia of ditto from the outer side.

9. *Metaphidippus flavolineatus*, ♂, dorsal view, legs removed; 9 *a*, palpus from beneath; 9 *b*, ditto from the outer side; 9 *c*, mandible from beneath.

10. *Metaphidippus variegatus*, ♂, mandible from beneath; 10 *a*, palpus from beneath, and tibia of ditto.

11. *Metaphidippus variegatus*, ♀, dorsal view, legs removed; 11 *a*, vulva.

12. *Metaphidippus digitatus*, ♂, dorsal view, legs removed; 12 *a*, palpus from the outer side; 12 *b*, mandible from beneath; 12 *c*, palpal bulb from beneath.

13. *Metaphidippus bicuspidatus*, ♂, dorsal view, legs removed; 13 *a*, palpus from beneath; 13 *b*, tibia of ditto from the outer side.

14. *Metaphidippus centralis*, ♂, palpus from the outer side; 14 *a*, ditto from beneath.

15. *Metaphidippus centralis*, ♀, vulva. (After Peckham.)

16. *Metaphidippus nigropictus*, ♀, dorsal view, legs removed; 16 *a*, vulva; 16 *b*, ditto, variety.

17. *Metaphidippus pallidatus*, ♀, dorsal view, legs removed; 17 *a*, vulva.

18. *Metaphidippus expallidatus*, ♀, dorsal view, legs removed; 18 *a*, vulva.

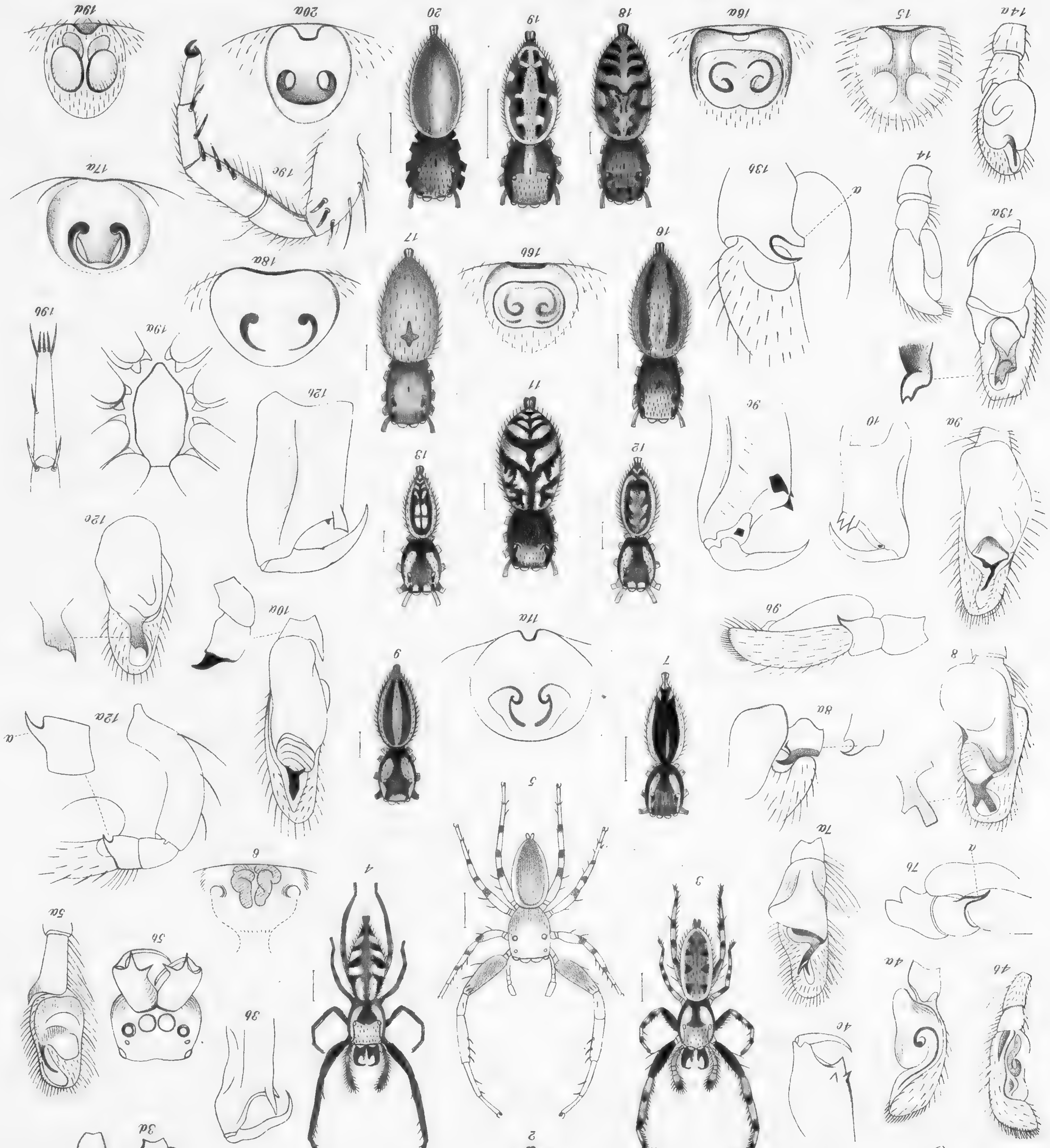
19. *Metaphidippus bicavatus*, ♀, dorsal view, legs removed; 19 *a*, sternum; 19 *b*, protarsus iv. from beneath; 19 *c*, leg i. from the inner side; 19 *d*, vulva.

20. *Metaphidippus cupreus*, ♀, dorsal view, legs removed; 20 *a*, vulva.

Inches 1 2 3 4 5 6 7 8
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Centimetres
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1,1 a,b ♂ METAPHIDIPPUS BISPINOSUS. 8, 8 a ♂ METAPHIDIPPUS FURCATUS. 14,14 a ♂ METAPHIDIPPUS CENTRALIS.
2,2 a,b ♀ " " LANCEOLATUS. 9, 9 a-c ♂ " FLAVOLINEATUS. 15 ♀ " "
3,3 a-d ♂ " " LEVISPINUS. 10,10 a ♂ " VARIEGATUS. 16,16 a,b ♀ " NIGROPICTUS.
4,4 a-c ♂ " " LETABILIS. 11,11 a ♀ " " 17,17 a ♀ " PALLIDATUS
5,5 a,b ♂ " " DUBITABILIS. 12,12 a-c ♂ " DIGITATUS. 18,18 a ♀ " EXPALLIDATUS.
6 ♀ " " FURCILLATUS. 13,13 a,b ♂ " BICUSPIDATUS. 19,19 a-d ♀ " BICAVATUS.
7,7 a,b ♂ " " 20,20 a ♀ " CUPREUS.

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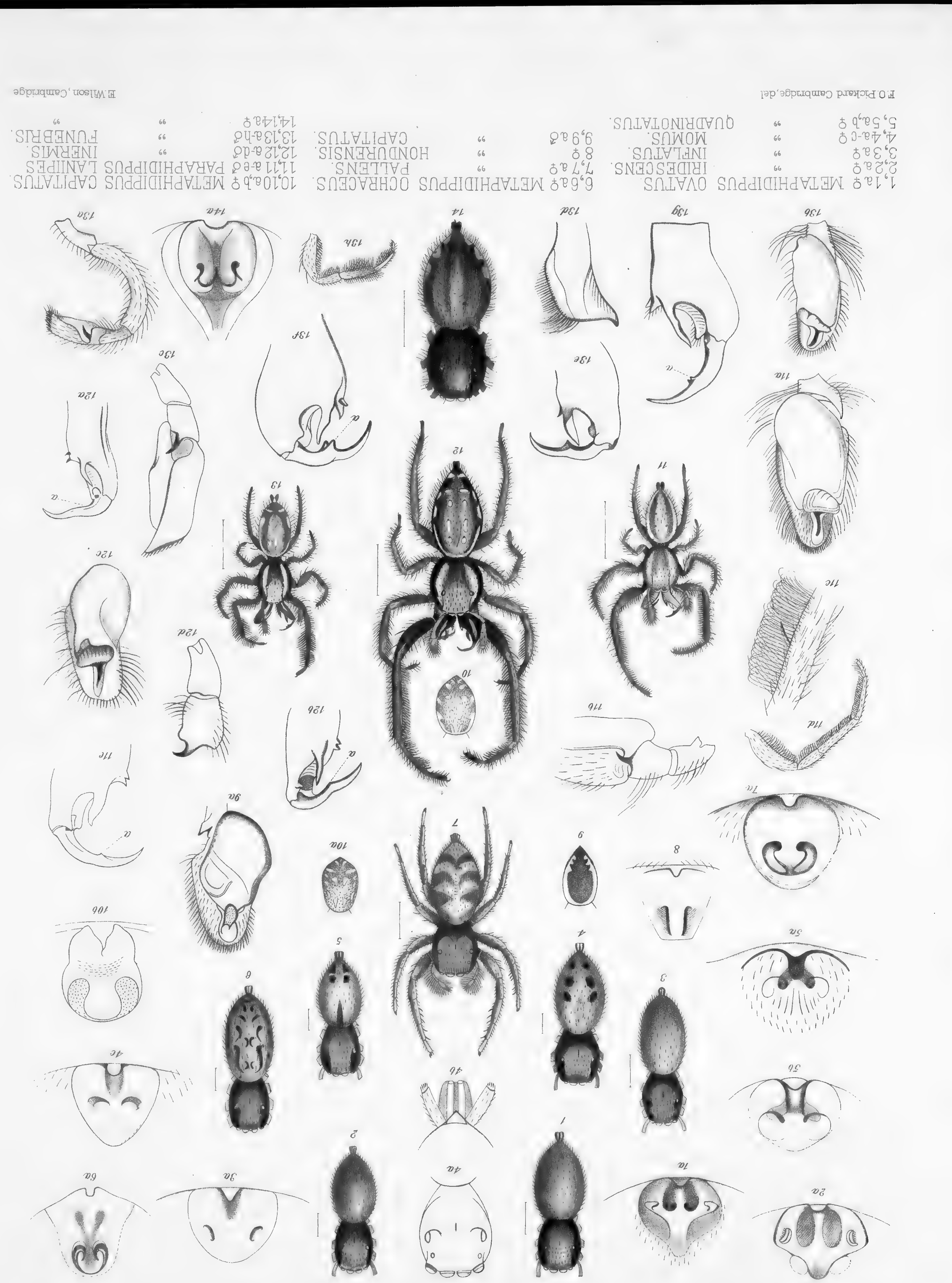
Black Centr. ctmr. Arachnida Araneidea. Vol II Tab. 24.

Vol. II.

## PLATE XXV.

Fig. 1. *Metaphidippus ovatus*, ♀, dorsal view, legs removed; 1 *a*, vulva.
2. *Metaphidippus iridescens*, ♀, dorsal view, legs removed; 2 *a*, vulva.
3. *Metaphidippus inflatus*, ♀, dorsal view, legs removed; 3 *a*, vulva.
4. *Metaphidippus momus*, ♀, dorsal view, legs removed; 4 *a*, eyes from above; 4 *b*, spinners from above; 4 *c*, vulva.
5. *Metaphidippus quadrinotatus*, ♀, dorsal view, legs removed; 5 *a*, vulva; 5 *b*, ditto, variety.
6. *Metaphidippus ochraceus*, ♀, dorsal view, legs removed; 6 *a*, vulva.
7. *Metaphidippus pallens*, ♀: 7 *a*, vulva.
8. *Metaphidippus hondurensis*, ♀, vulva.
9. *Metaphidippus capitatus*, ♂, abdomen, dorsal view; 9 *a*, palpus from beneath. (After Peckham.)
10. *Metaphidippus capitatus*, ♀, abdomen, dorsal view; 10 *a*, ditto, variety; 10 *b*, vulva. (After Peckham.)
11. *Paraphidippus laniipes*, ♂: 11 *a*, palpus from beneath; 11 *b*, tibia of palpus from the outer side; 11 *c*, mandible from beneath; 11 *d*, leg i. from the inner side; 11 *e*, protarsus i., about the middle.
12. *Paraphidippus inermis*, ♂: 12 *a*, mandible from beneath; 12 *b*, ditto, variety; 12 *c*, palpal bulb from beneath; 12 *d*, tibia and patella of palpus from the outer side.
13. *Paraphidippus funebris*, ♂: 13 *a*, palpus from the outer side; 13 *b*, palpal bulb from beneath; 13 *c*, ditto from the outer side; 13 *d*, maxilla; 13 *e*, mandible from above; 13 *f*, ditto from beneath; 13 *g*, ditto, variety; 13 *h*, leg i. from the inner side.
14. *Paraphidippus funebris*, ♀, dorsal view, legs removed; 14 *a*, vulva.

Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
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1,1a♀ METAPHIDIPPUS OVATUS.
2,2a♀ " IRIDESCENS.
3,3a♀ " INFLATUS.
4,4a-c♀ " MOMUS.
5,5a,b♀ " QUADRINOTATUS.
6,6a♀ METAPHIDIPPUS OCHRACEUS.
7,7a♀ " PALLENS.
8♀ " HONDURENSIS.
9,9a♂ " CAPITATUS.
10,10a,b♀ METAPHIDIPPUS CAPITATUS.
11,11a-e♂ PARAPHIDIPPUS LANIPES.
12,12a-d♂ " INERMIS.
13,13a-h♂ " FUNEBRIS.
14,14a♀ " "

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Biol. Centr. Amer.

Arachnida Araneidea. Vol. II. Tab. 25.

# PLATE XXVI.

Fig. 1. *Paraphidippus chrysis*, ♂ : 1 *a*, palpus from beneath ; 1 *b*, ditto, variety ; 1 *c*, ditto, variety, showing tibial spur.

2. *Paraphidippus chrysis*, ♀ : 2 *a*, ditto, variety ; 2 *b*, ditto, another variety ; 2 *c*, vulva ; 2 *d*, ditto, variety ; 2 *e*, ditto, another variety ; 2 *f*, ditto, an immature example.

3. *Paraphidippus disjunctus*, ♀ : 3 *a*, ditto, variety ; 3 *b*, eyes from above ; 3 *c*, vulva.

4. *Paraphidippus marmoratus*, ♀ : 4 *a*, ditto, variety ; 4 *b*, vulva ; 4 *c*, ditto, variety ; 4 *d*, ditto, immature example.

5. *Paraphidippus fartilis*, ♀ , vulva.

6. *Paraphidippus militaris*, ♂ , palpus. (After Peckham.)

7. *Paraphidippus militaris*, ♀ , vulva. (After Peckham.)

8. *Paraphidippus mexicanus*, ♀ , vulva.

9. *Phidippus carneus*, ♀ : 9 *a*, vulva. (After Peckham.)

10. *Phidippus foveolatus*, ♀ : 10 *a*, eyes from above ; 10 *b*, vulva.

11. *Phidippus aureopilosus*, ♀ : 11 *a*, vulva.

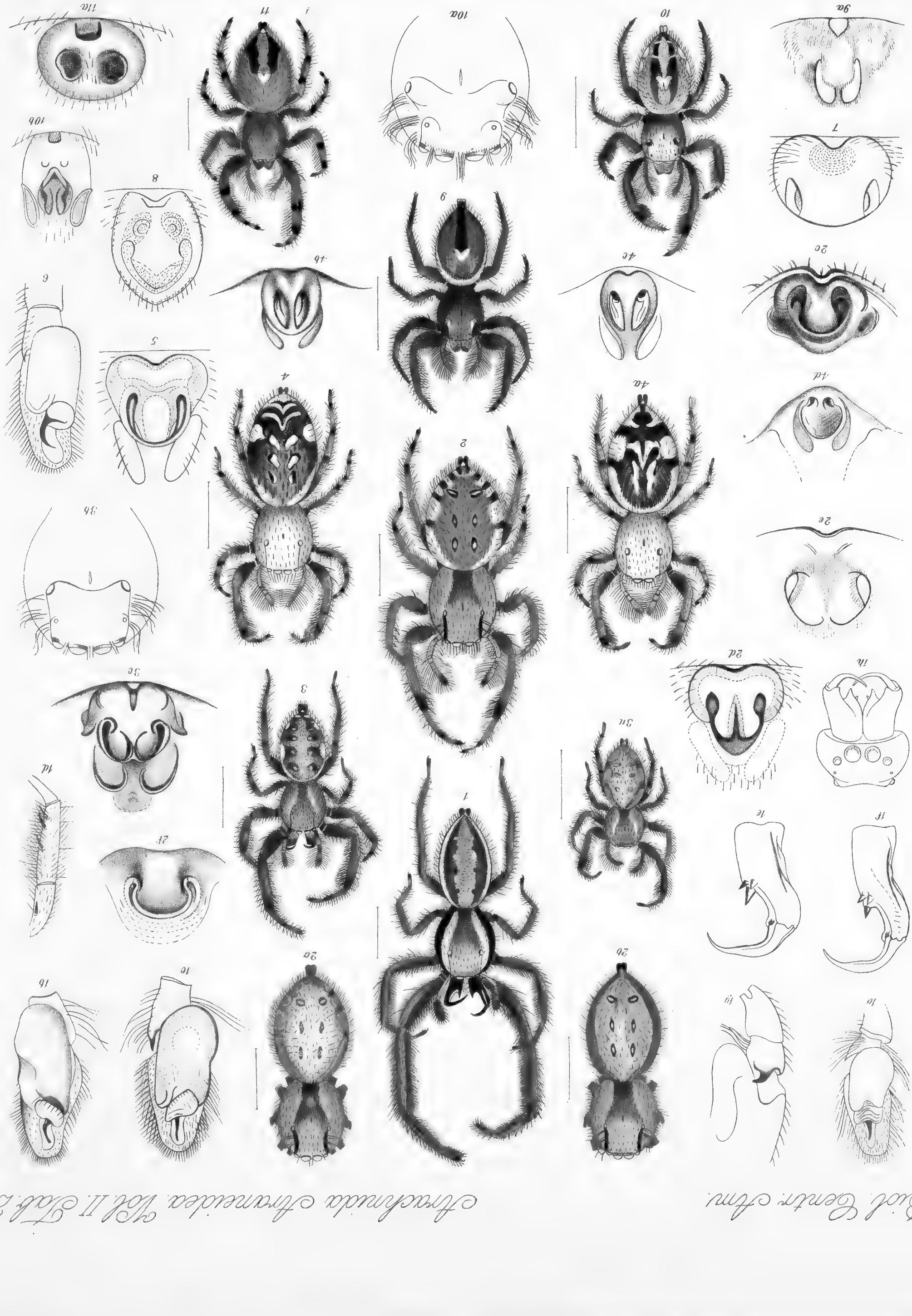
Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
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1,1a-h ♂ PARAPHIDIPPUS CHRYSIS. " "
2,2a-f ♀ " "
3,3a-c ♀ " DISJUNCTUS.
4,4a-d ♀ " MARMORATUS.

5♀ PARAPHIDIPPUS FARTILIS.
6♂ " "
7♀ " MILITARIS. "

8♀ PARAPHIDIPPUS MEXICANUS.
9,9a ♀ PHIDIPPUS CARNEUS.
10,10a,b ♀ " FOVEOLATUS.
11,11a ♀ " AUREOPILOSUS.



Black Centr: etm.

Araschnida Araneidea. Pl. II Fig. 26.

## PLATE XXVII.

Fig. 1. *Phidippus tuberculatus*, ♂: 1 *a*, palpus from beneath; 1 *b*, ditto from the outer side; 1 *c*, carapace from above; 1 *d*, leg i. from in front.

2. *Phidippus tuberculatus*, ♀: 2 *a*, carapace, lateral view; 2 *b*, vulva.

3. *Phidippus arizonensis*, ♂, palpus from beneath. (After Emerton.)

4. *Phidippus cruentus*, ♀: 4 *a*, vulva.

5. *Phidippus georgii*, ♀, vulva. (After Emerton.)

6. *Phidippus brunneus*, ♂, palpus from beneath; 6 *a*, ditto from the outer side; 6 *b*, mandible from beneath.

7. *Phidippus brunneus*, ♀: 7 *a*, vulva.

8. *Phidippus howardi*, ♂, palpus. (After Emerton.)

9. *Phidippus albulatus*, ♂: 9 *a*, sternum; 9 *b*, palpus from beneath; 9 *c*, apex of bulb enlarged; 9 *d*, tibial spur of palpus; 9 *e*, mandible from beneath; 9 *f*, maxilla from beneath.

10. *Phidippus mexicanus*, ♂, palpus from beneath.

11. *Phidippus bidentatus*, ♂: 11 *a*, palpus from beneath; 11 *b*, patella and tibia of palpus from the outer side; 11 *c*, apex of bulb enlarged; 11 *d*, mandible from beneath.

12. *Parnænus cyanidens*, ♂, palpus from beneath.

13. *Parnænus cyanidens*, ♀: 13 *a*, eyes from in front; 13 *b*, carapace, lateral view. (After Emerton.)

14. *Parnænus cuspidatus*, ♂, dorsal view, legs removed; 14 *a*, palpus from beneath; 14 *b*, ditto from the outer side; 14 *c*, mandible from beneath; 14 *d*, maxilla from above.

15. *Parnænus fimbriatus*, ♂: 15 *a*, palpus from beneath; 15 *b*, mandible from beneath; 15 *c*, leg i., tibia from the inner side.

16. *Zygoballus rufipes*, ♂, palpus from the outer side; 16 *a*, ditto from beneath; 16 *b*, mandible from beneath; 16 *c*, ditto from outer side; 16 *d*, spider, profile view; 16 *e*, sternum; 16 *f*, palpus from the inner side; 16 *g*, leg i., tibia from the inner side; 16 *h*, leg iv., protarsus from beneath.

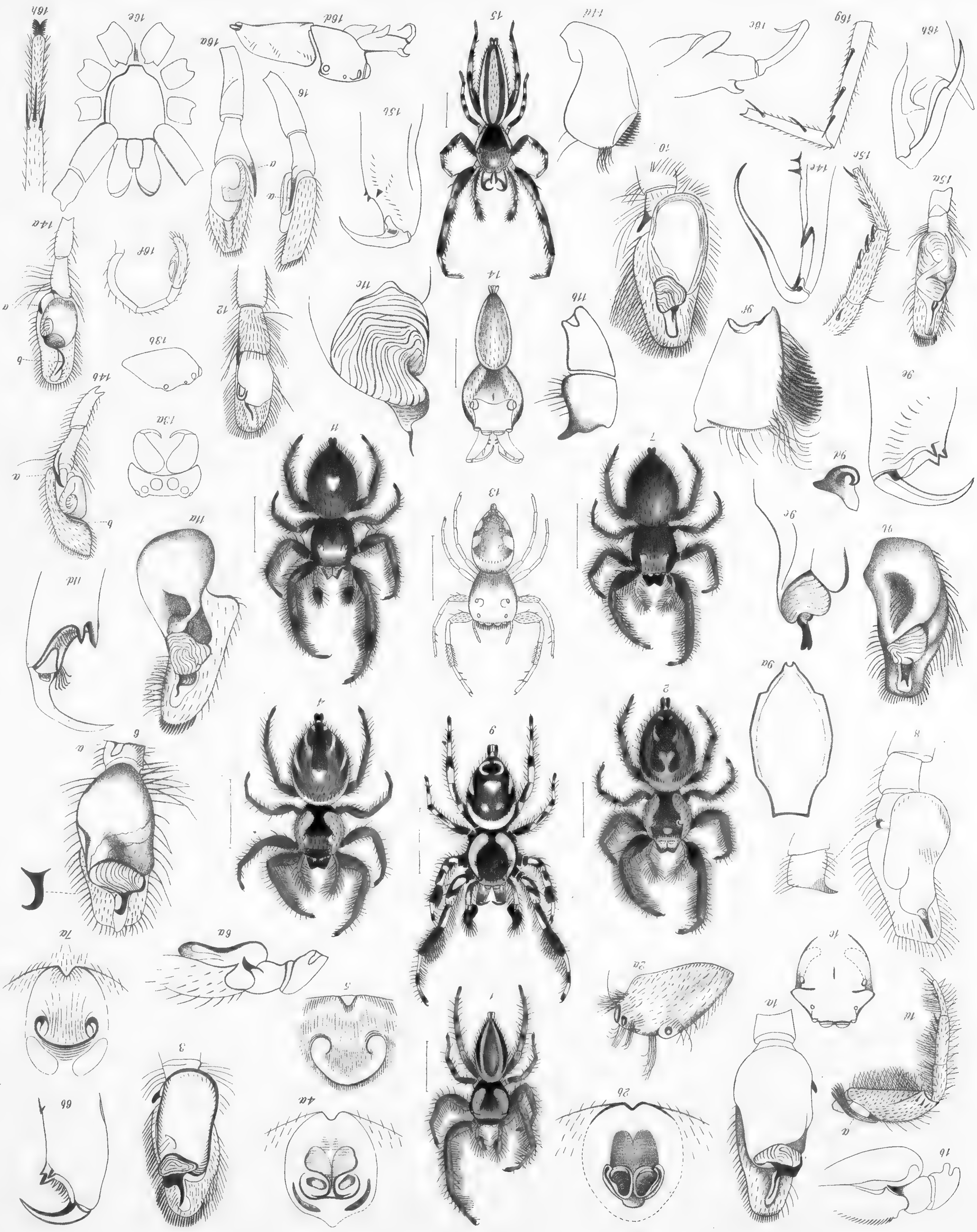
Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
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1,1 a-d♂ PHIDIPPUS TUBERCULATUS. ,,
2,2 a,b♀ ,, ARIZONENSIS.
3♂ ,, CRUENTUS.
4,4 a♀ ,, GEORGII.
5♀

6,6 a,b♂ PHIDIPPUS BRUNNEUS. ,,
7,7 a♀ ,, HOWARDI.
8♂ ,, ALBULATUS.
9,9 a-f♂ ,, MEXICANUS.
10♂ ,, BIDENTATUS.
11,11 a-d♂

12♂ PARNENUS CYANIDENS. ,,
13,13 a,b♀ ,, CUSPIDATUS.
14,14 a-d♂ ,, FIMBRIATUS.
15,15 a-c♂ ,, ZYGOBALLUS RUFIPES.
16,16 a-h♂



Biol. Centr. etm.

Arachnida Araneidea. Vol. II Tab. 27.

# PLATE XXVIII.

Fig. 1. *Zygoballus rufipes*, ♀, leg i. from the outer side; 1 *a*, vulva.
2. *Zygoballus remotus*, ♂, palpus from beneath.
3. *Zygoballus tibialis*, ♂, palpus from beneath; 3 *a*, ditto from the outer side; 3 *b*, ditto, another view.
4. *Zygoballus tibialis*, ♀: 4 *a*, ditto, variety; 4 *b*, leg i. from the outer side; 4 *c*, vulva.
5. *Zygoballus minutus*, ♂, palpus from beneath; 5 *a*, ditto from the outer side.
6. *Zygoballus minutus*, ♀, vulva.
7. *Zygoballus maculatus*, ♀: 7 *a*, vulva.
8. *Beata magna*, ♀, carapace from above; 8 *a*, mandible from beneath; 8 *b*, sternum; 8 *c*, leg i. from the outer side; 8 *d*, protarsus iv. from beneath; 8 *e*, vulva; 8 *f*, ditto, variety.
9. *Beata cephalica*, ♀, carapace from above; 9 *a*, mandible from beneath; 9 *b*, sternum; 9 *c*, leg i. from the outer side; 9 *d*, protarsus iv. from beneath; 9 *e*, vulva.
10. *Homalattoides roseus*, ♂, palpus from beneath; 10 *a*, ditto from the outer side; 10 *b*, leg i. from the inner side.
11. *Homalattoides roseus*, ♀, mandible from beneath; 11 *a*, sternum; 11 *b*, protarsus iv. from beneath.
12. *Homalattoides longipes*, ♂, palpus from the outer side; 12 *a*, ditto, bulb from beneath; 12 *b*, ditto from the outer side, another view; 12 *c*, ditto from beneath, variety; 12 *d*, mandible from beneath; 12 *e*, ditto, another view; 12 *f*, leg i. from the inner side; 12 *g*, protarsus iv. from beneath.
13. *Homalattoides alboguttatus*, ♂, palpus from beneath; 13 *a*, mandible from beneath; 13 *b*, leg i. from the outer side.
14. *Coccorchestes scarabæoides*, ♀: 14 *a*, vulva.
15. *Coccorchestes adjacens*, ♀: 15 *a*, eyes from in front; 15 *b*, sternum; 15 *c*, leg i. from the outer side; 15 *d*, vulva.
16. *Fuentes pertinax*, ♂, palpus from beneath; 16 *a*, ditto from the outer side; 16 *b*, ditto from above.
17. *Fuentes pertinax*, ♀, vulva.
18. *Balmaceda picta*, ♂, palpus from the outer side; 18 *a*, ditto from beneath; 18 *b*, ditto from above.
19. *Balmaceda picta*, ♀, carapace from above; 19 *a*, vulva.

Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
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1,1a ♀ ZYGOBALLUS RUFIPES. 7,7a ♀ ZYGOBALLUS MACULATUS. 14,14a ♀ COCCORCHESTES SCARABEOIDES.
2 ♂ ,, REMOTUS. 8,8a-f ♀ BEATA MAGNA. ,, ADJACENS.
3,3a,b ♂ ,, TIBIALIS. 9,9a-e ♀ ,, CEPHALICA. 15,15a-d ♀ ,, FUENTES PERTINAX
4,4a-c ♀ ,, ,, 10,10a,b ♂ HOMALATTOIDES ROSEUS. 16,16a,b ♂ ,, ,,
5,5a ♂ ,, MINUTUS. 11,11a,b ♀ ,, ,, 17 ♀ ,, ,,
6 ♀ ,, ,, 12,12a-g ♂ ,, LONGIPES. 18,18a,b ♂ BALMACEDA PICTA. ,, ,,
13,13a,b ♂ ,, ALBOGUTTATUS. 19,19a ♀ ,, ,,

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Arachnida Araneidea. Vol. II. Tab. 28.

# PLATE XXIX.

Fig. 1. *Tomis palpalis*, ♂, palpus from beneath; 1 *a*, ditto, showing tibial spur; 1 *b*, mandible from beneath.

2. *Balmaceda punctata*, ♂, palpus from beneath; 2 *a*, ditto from the outer side. (After Emerton.)

3. *Balmaceda punctata*, ♀, vulva. (After Emerton.)

4. *Nagaina incunda*, ♀, vulva. (After Emerton.)

5. *Bagheera kiplingi*, ♂, palpus from above; 5 *a*, ditto from the outer side; 5 *b*, eyes and mandibles from in front. (After Emerton.)

6. *Shira designata*, ♀, eyes and mandibles from in front. (After Emerton.)

7. *Avitus dioleni*, ♀, palpus from the outer side; 7 *a*, eyes and mandibles from in front. (After Emerton.)

8. *Akela charlottæ*, ♂, palpus from the inner side; 8 *a*, ditto from the outer side. (After Emerton.)

9. *Tulpius hilaris*, ♂, palpus from beneath. (After Emerton.)

10. *Messua desidiosa*, ♀, vulva. (After Emerton.)

11. *Eris barbipes*, ♀, leg i. from the outer side; 11 *a*, vulva. (After Emerton.)

12. *Cotinusa distincta*, ♂, palpus from beneath. (After Emerton.)

13. *Epiblemum albocinctum*, ♀, vulva. (After Emerton.)

14. *Euophrys newtoni*, ♀, vulva. (After Emerton.)

15. *Euophrys ysabali*, ♂, palpus from the outer side.

16. *Cupiennius sallei*, ♂: 16 *a*, palpus from beneath; 16 *b*, ditto from the outer side; 16 *c*, eyes from in front.

17. *Cupiennius sallei*, ♀: 17 *a*, profile; 17 *b*, eyes and mandibles from in front; 17 *c*, spinners from beneath; 17 *d*, apex of mandible from beneath; 17 *e*, tarsus i. from beneath, showing claw-tufts; 17 *f*, ditto in profile, with claw-tuft removed from one side; 17 *g*, ditto from in front; 17 *h*, abdomen from beneath; 17 *i*, vulva.

18. *Cupiennius coccineus*, ♀, vulva.

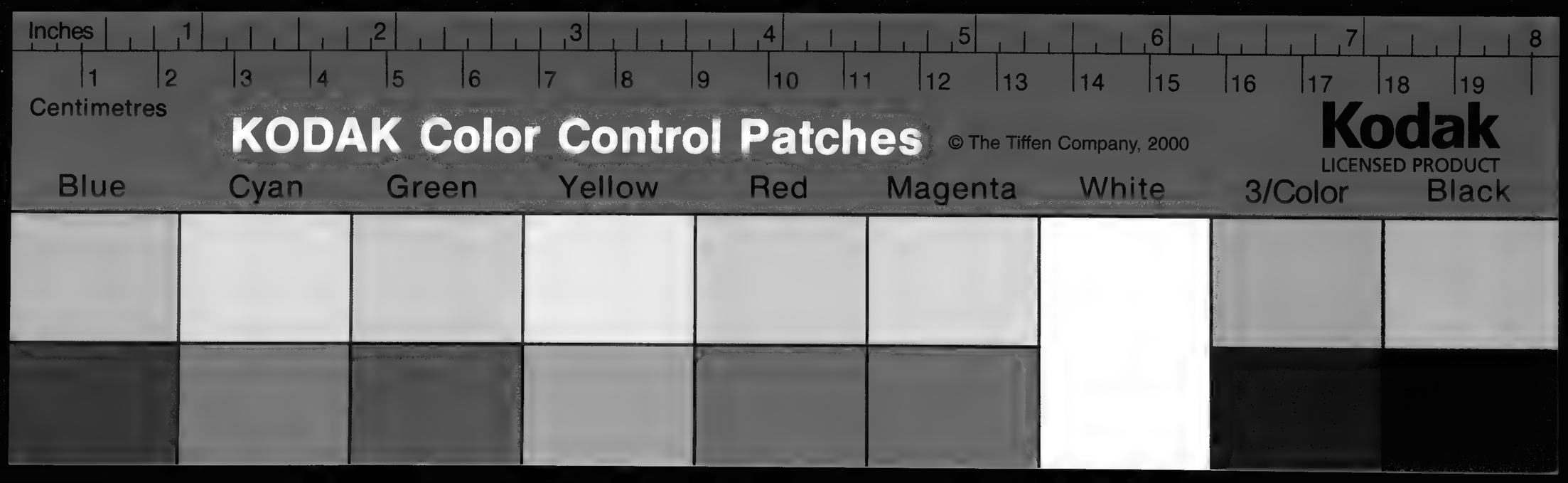
19. *Ctenus scopulatus*, ♀, tarsus i. from in front.

20. *Heteropoda venatoria*, ♀, tarsus i. from in front.

21. *Lycosa tarentula*, ♀, tarsus i. from in front.

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Note.—Figg. 19, 20, and 21 are added for comparison with fig. 17, to show the form of the apical sclerite (plantula) with and without the small third claw.




1,1a,b♂ TOMIS PALPALIS.
2,2a♂ BALMACEDA PUNCTATA.
3♀ " "
4♀ NAGAINA INCUNDA.
5,5a,b♂ BAGHEERA KIPLINGI.
6♀ SHIRA DESIGNATA.
7,7a♂ AVITUS DIOLENI.
8,8a♂ AKELA CHARLOTTAE.
9♂ TULPIUS HILARIS.
10♀ MESSUA DESIDIOSA.
11,11a♀ ERIS BARBIPES.
12♂ CONTINUSA DISTINCTA.
13♀ EPIBLEMUM ALBOCINCTUM.
14♀ EUOPHRYS NEWTONI.
15♂ EUOPHRYS YSABALI.
16,16a-c♂ CUPIENNIUS SALLEI.
17,17a-i♀ " "
18♀ " COCCINEUS.
19♀ CTENUS SCOPULATUS.
20♀ HETEROPODA VENATORIA.
21♀ LYCOSA TARENTULA.

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E. Wilson, Cambridge

Nat. size.

*Biol. Centr.-Amer.*

*Arachnida Araneidea Vol II Tab 29*

# PLATE XXX.

Fig. 1. *Cupiennius foliatus*, ♂, underside; 1 *a*, palpus from beneath.
2. *Cupiennius foliatus*, ♀, dorsal view, legs and palpi removed; 2 *a*, vulva.
3. *Lycoctenus bogotensis*, ♂: 3 *a*, palpus from beneath.
4. *Lycoctenus bogotensis*, ♀, claws of tarsus i.; 4 *a*, spinners, from beneath; 4 *b*, vulva from above; 4 *c*, ditto, profile.
5. *Thaumasia velox*, ♂, eyes from in front; 5 *a*, palpus from the outer side (*c*, chitinous process of bulb; *c*[1], ditto from an Amazonian example); 5 *b*, tibial spur of palpus lying on the base of the tarsus; 5 *c*, tibial spur.
6. *Thaumasia uncata*, ♂, palpus from beneath; 6 *a*, tibial spur of palpus.
7. *Thaumasia uncata*, ♀, vulva.
8. *Tinus nigrinus*, ♂, palpus from beneath; 8 *a*, bulb of palpus from the outer side; 8 *b*, tibial spur of palpus.
9. *Tinus nigrinus*, ♀, vulva.
10. *Tinus tibialis*, ♂, palpus from beneath; 10 *a*, tibia of palpus; 10 *b*, bulb of palpus from the outer side.
11. *Tinus tibialis*, ♀, vulva.
12. *Tinus minutus*, ♀, vulva.
13. *Enna velox*, ♂, tibia of palpus from beneath; 13 *a*, ditto from above; 13 *b*, eyes from in front.
14. *Enna velox*, ♀, vulva.
15. *Trechalea habilis*, ♂, tibia of palpus, showing spur.
16. *Trechalea extensa*, ♂: 16 *a*, eyes from in front; 16 *b*, tibia of palpus from the outer side, showing spur.
17. *Trechalea convexa*, ♂, tibia of palpus from the outer side, showing spur.
18. *Syntrechalea tenuis*, ♀, vulva.
19. *Pardosa prolifica*, ♂, bulb of palpus from beneath; 19 *a*, ditto from the inner side.
20. *Pardosa prolifica*, ♀, dorsal view, legs and palpi omitted; 20 *a*, vulva.
21. *Pardosa longivulva*, ♂, bulb of palpus from the inner side; 21 *a*, ditto from beneath.
22. *Pardosa longivulva*, ♀, vulva.
23. *Pardosa falcifera*, ♂, bulb of palpus from beneath.
24. *Pardosa falcifera*, ♀, vulva; 24 *a*, ditto, variety.
25. *Pardosa flavipalpis*, ♂, bulb of palpus from beneath; 25 *a*, central unca, another view; 25 *b*, ditto, from another example.
26. *Pardosa flavipalpis*, ♀, vulva.
27. *Pardosa uncatula*, ♂, bulb of palpus from beneath; 27 *a*, ditto from the inner side.
28. *Pardosa uncatula*, ♀, vulva.

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The small letters, unless otherwise stated, refer to similar portions of structure.

1,1a ♂ CUPIENNIUS FOLIATUS.
2,2a ♀ " "
3,3a ♂ LYCOCTENUS BOGOTENSIS.
4,4a-c ♀ " "
5,5a-c ♂ THAUMASIA VELOX.
6,6a ♂,7♀ " UNCATA.
8,8a,b ♂ TINUS NIGRINUS.
9♀ " "
10,10a,b ♂ " TIBIALIS.

11♀ TINUS TIBIALIS.
12♀ " MINUTUS.
13,13a,b ♂ ENNA VELOX.
14♀ " "
15♂ TRECHALEA HABILIS.
16,16a,b ♂ " EXTENSA.
17♂ " CONNEXA.
18♀ SYNTRECHALEA TENUIS.
19,19a ♂ PARDOSA PROLIFICA.

20,20a♀ PARDOSA PROLIFICA.
21,21a♂ " LONGIVULVA.
22♀ " "
23♂ " FALCIFERA.
24,24a♀ " "
25,25a,b♂ " FLAVIPALPIS.
26♀ " "
27,27a♂ " UNCATULA.
28♀ " "

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E.Wilson, Cambridge.

VOL. II.

## PLATE XXXI.

Fig. 1. *Pardosa unguifera*, ♂, palpus from beneath.
2. *Pardosa unguifera*, ♀, dorsal view, legs removed; 2 *a*, vulva.
3. *Pardosa falcula*, ♂, palpus from beneath.
4. *Pardosa hamifera*, ♂, palpus from the outer side; 4 *a*, ditto from beneath.
5. *Pardosa linguata*, ♀, dorsal view, legs removed; 5 *a*, vulva.
6. *Pardosa plagula*, ♀, vulva.
7. *Pardosa lineata*, ♀, dorsal view, legs removed; 7 *a*, vulva.
8. *Pardosa canalis*, ♀, vulva.
9. *Lycosa insignis*, ♂, dorsal view, legs removed; 9 *a*, eyes from in front.
10. *Lycosa hirsuta*, ♀, vulva.
11. *Lycosa subfusca*, ♀, vulva.
12. *Lycosa brunnea*, ♀ : 12 *a*, vulva.
13. *Lycosa transversa*, ♀, vulva.
14. *Lycosa ventralis*, ♀, abdomen, ventral area; 14 *a*, vulva.
15. *Lycosa longivulva*, ♀, vulva.
16. *Lycosa lativulva*, ♀, vulva.
17. *Lycosa dilatata*, ♀, abdomen, ventral area; 17 *a*, vulva.
18. *Lycosa brevitarsis*, ♀, vulva.
19. *Lycosa constricta*, ♀, vulva.
20. *Lycosa longitarsis*, ♀, vulva.
21. *Lycosa guttatula*, ♀, vulva.
22. *Lycosa uncata*, ♂, abdomen, ventral area; 22 *a*, bulb of palpus from outer side; 22 *b*, ditto, another view, enlarged.
23. *Pirata felix*, ♀, vulva.
24. *Arctosa trifida*, ♂, palpus from beneath.
25. *Arctosa trifida*, ♀ : 25 *a*, vulva.
26. *Arctosa minuta*, ♂, palpus from beneath.
27. *Arctosa minuta*, ♀, vulva.
28. *Arctosa cinerea* *, ♂, barbiform process of palpus.
29. *Arctosa cinerea* *, ♀, vulva.
30. *Sosippus mexicanus*, ♂, palpus from the outer side.
31. *Sosippus mexicanus*, ♀ : 31 *a*, eyes from above and behind; 31 *b*, ditto from in front; 31 *c*, vulva.
32. *Tegenaria derhami*, ♂, palpus.
33. *Tegenaria derhami*, ♀, vulva.
34. *Tegenaria flexuosa*, ♂, palpus from above; 34 *a*, ditto from beneath.
35. *Agelenopsis nova*, ♂, palpus from beneath; 35 *a*, ditto from above.
36. *Agelenopsis marginata*, ♂, palpus from the outer side; 36 *a*, ditto from beneath.
37. *Agelenopsis elegans*, ♂, palpus from beneath; 37 *a*, ditto from the outer side; 37 *b*, eyes from in front.
38. *Agelenopsis transversa*, ♂, palpus from the outer side; 38 *a*, ditto from beneath.

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* The figures of this species are taken from British specimens.

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The small letters, unless otherwise stated, refer to similar portions of structure.

1♂,2,2a♀ PARDOSA UNGUIFERA.
3♂ " FALCULA.
4,4a♂ " HAMIFERA
5,5a♀ " LINGUATA.
6♀ " PLAGULA.
7,7a♀ " LINEATA.
8♀ " CANALIS.
9,9a♂ LYCOSA INSIGNIS.
10♀ " HIRSUTA.
11♀ " SUBFUSCA.
12,12a♀ " BRUNNEA.

13♀ LYCOSA TRANSVERSA.
14,14a♀ " VENTRALIS.
15♀ " LONGIVULVA.
16♀ " LATIVULVA.
17,17a♀ " DILATATA.
18♀ " BREVITARSIS.
19♀ " CONSTRICTA.
20♀ " LONGITARSIS.
21♀ " GUTTATULA.
22,22a,b♂ " UNCATA.

23♀ PIRATA FELIX.
24♂,25,25a♀ ARCTOSA TRIFIDA.
26♂,27♀ " MINUTA.
28♂,29♀ " CINEREA.
30♂,31,31a-c♀ SOSIPPUS MEXICANUS
32♂,33♀ TEGENARIA DERHAMI
34,34a♂ " FLEXUOSA.
35,35a♂ AGELENOPSIS NOVA.
36,36a♂ " MARGINATA
37,37a,b♂ " ELEGANS.
38,38a♂ " TRANSVERSA.

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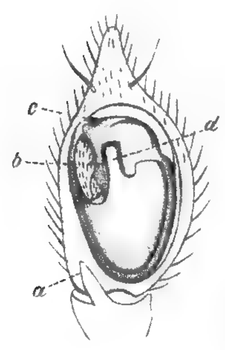
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# PLATE XXXII.

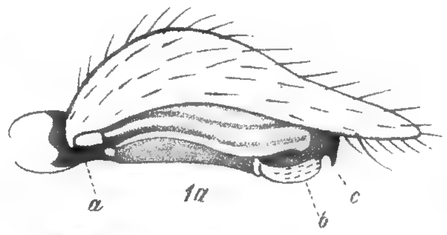
Fig. 1. *Agelenopsis simplex*, ♂, palpus from beneath; 1 *a*, ditto from the outer side; 1 *b*, tibia and base of tarsus of palpus, enlarged.
2. *Agelenopsis lobata*, ♀, vulva.
3. *Agelenopsis cuspidata*, ♀, vulva.
4. *Agelenopsis bicavata*, ♀, vulva.
5. *Agelenopsis cavata*, ♀, vulva.
6. *Agelenopsis costata*, ♀, vulva.
7. *Agelenopsis attenuata*, ♀, vulva.
8. *Agelenopsis penetralis*, ♀, vulva.
9. *Agelenopsis variabilis*, ♀, vulva.
10. *Agelenopsis glaucopis*, ♀, vulva.
11. *Peucetia longipalpis*, ♂, palpus from the outer side.
12. *Peucetia bibranchiata*, ♂, palpus from the outer side; 12 *a*, ditto from inner side, beneath.
13. *Peucetia bibranchiata*, ♀, with egg-cocoon; 13 *a*, eyes from above; 13 *b*, vulva; 13 *c*, ditto, variety.
14. *Oxyopes gracilis*, ♂, tibia and base of tarsus of palpus; 14 *a*, tarsus of palpus; 14 *b*, ditto, another view.
15. *Oxyopes gracilis*, ♀, eyes from above; 15 *a*, vulva from below; 15 *b*, ditto, lateral view.
16. *Oxyopes cornutus*, ♂, tarsus of palpus.
17. *Oxyopes tricuspidatus*, ♂, tarsus of palpus from beneath; 17 *a*, tibia and base of tarsus of ditto; 17 *b*, tibial spur, another view.
18. *Oxyopes globosus*, ♂, tarsus of palpus from beneath; 18 *a*, ditto, lateral view; 18 *b*, ditto, another view; 18 *c*, tibia of palpus.
19. *Oxyopes globosus*, ♀, vulva; 19 *a*, ditto, variety or immature.
20. *Oxyopes bifidus*, ♂, tarsus of palpus from beneath; 20 *a*, tibia of palpus.
21. *Oxyopes bifissus*, ♂, tarsus of palpus from beneath; 21 *a*, tibia of palpus.
22. *Oxyopes bifissus*, ♀, vulva.
23. *Oxyopes tibialis*, ♂, tibia and tarsus of palpus; 23 *a*, ditto, another view.
24. *Oxyopes calcarifer*, ♂, tibia and tarsus of palpus.
25. *Oxyopes lingulifer*, ♀, vulva from beneath; 25 *a*, ditto, lateral view.
26. *Oxyopes clypeatus*, ♀, vulva.
27. *Oxyopes annulipes*, ♀, vulva.
28. *Oxyopes transversus*, ♀, vulva.
29. *Oxyopes brunneus*, ♀, vulva.
30. *Oxyopeidon putum*, ♂, tibia and base of tarsus of palpus; 30 *a*, tibial spurs, another view; 30 *b*, tibia and tarsus of palpus from the outer side.
31. *Oxyopeidon putum*, ♀, vulva; 31 *a*, ditto, variety.
32. *Oxyopeidon flebile*, ♀, vulva.
33. *Oxyopeidon lætum*, ♀, vulva.
34. *Oxyopeidon subfacile*, ♀, eyes from above; 34 *a*, ditto from in front.
35. *Oxyopeidon molestum*, ♀, vulva.
36. *Hamataliwa facilis*, ♀, eyes from above; 36 *a*, ditto from in front; 36 *b*, vulva.

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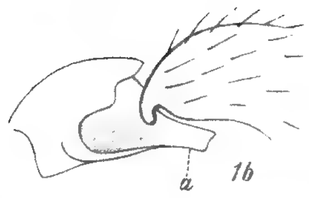
The small letters, unless otherwise stated, refer to similar portions of structure.



1



1a



1b


2


3


4


5

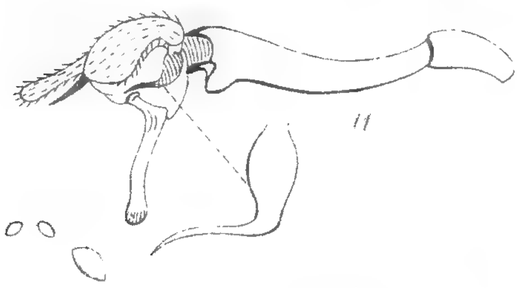

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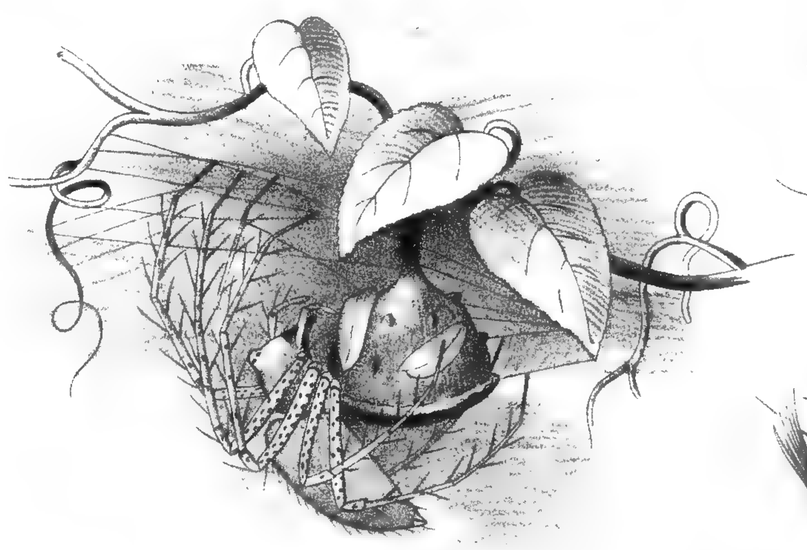

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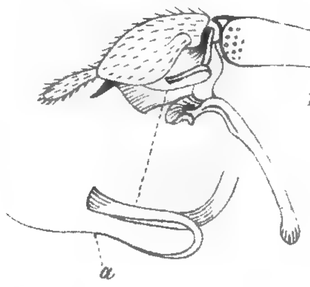

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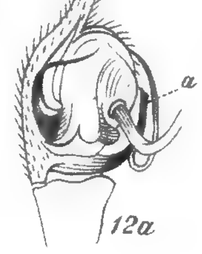

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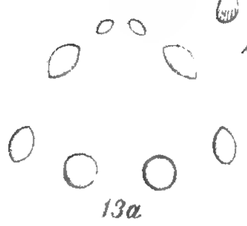

11


13


12



12a


13a


13c


13b

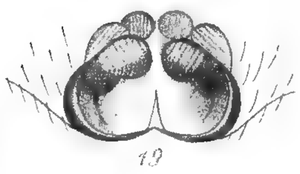

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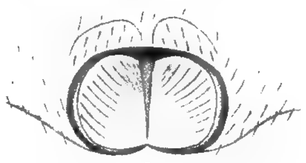

15a


15b

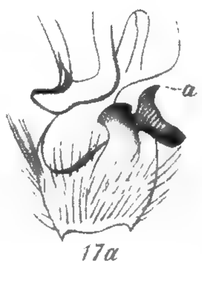

16


17


19


19a


22


17a


18



18a



17b

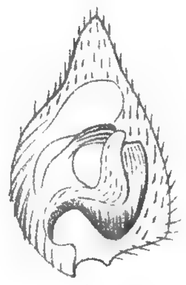


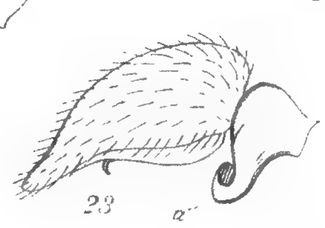
18b


20

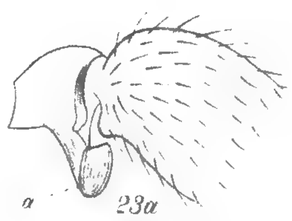

20a


21a

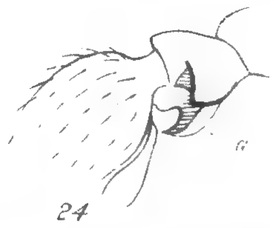

21



23



23a

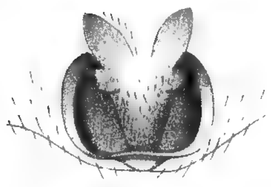


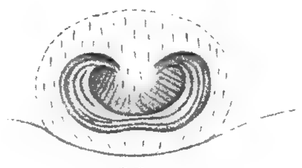
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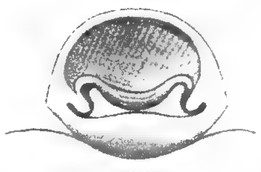


18c

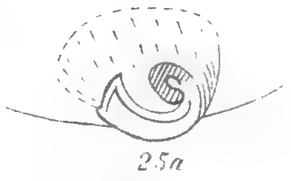

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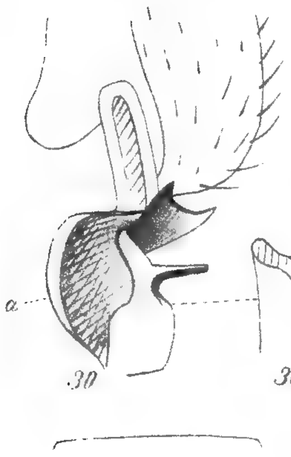

26


27


28


29


25a


30


30a

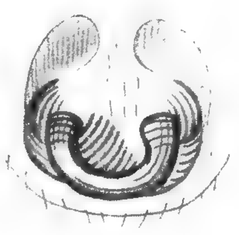


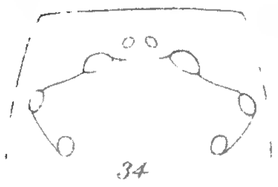
30b

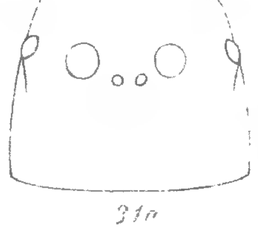

31


31a


32

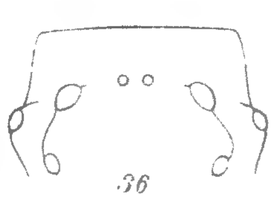

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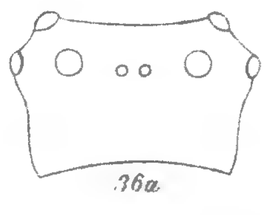

34


34a


35


36b


36


36a

1,1a,b ♂ AGELENOPSIS SIMPLEX.
2 ♀ " LOBATA.
3 ♀ " CUSPIDATA.
4 ♀ " BICAVATA.
5 ♀ " CAVATA.
6 ♀ " COSTATA.
7 ♀ " ATTENUATA.
8 ♀ " PENETRALIS
9 ♀ " VARIABILIS.
10 ♀ " GLAUCOPIS.
11 ♂ PEUCETIA LONGIPALPIS.
12,12a ♂,13,13a-c ♀ " BIBRANCHIATA.
14,14a,b ♂,15,15a,b ♀ OXYOPES GRACILIS.
16 ♂ " CORNUTUS.
17,17a,b ♂ " TRICUSPIDATUS
18,18a-c ♂,19,19a ♀ " GLOBOSUS.
20,20a ♂ " BIFIDUS.
21,21a ♂,22 ♀ " BIFISSUS.
23,23a ♂ " TIBIALIS
24 ♂ " CALCARIFER.
25,25a ♀ " LINGULIFER.
26 ♀ OXYOPES CLYPEATUS.
27 ♀ " ANNULIPES.
28 ♀ " TRANSVERSUS.
29 ♀ " BRUNNEUS.
30,30a,b ♂,31,31a ♀ OXYOPEIDON PUTUM.
32 ♀ " FLEBILE.
33 ♀ " LÆTUM.
34,34a ♀ " SUBFACILE.
35 ♀ " MOLESTUM.
36,36a,b ♀ HAMATALIVA FACILIS

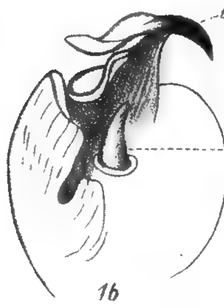
# PLATE XXXIII.

Fig. 1. *Senoculus prolatus*, ♂, tibia and tarsus of palpus; 1 *a*, bulb, enlarged; 1 *b*, ditto, another view.

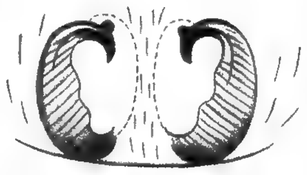
2. *Senoculus prolatus*, ♀, vulva.
3. *Senoculus canaliculatus*, ♂, bulb of palpus.
4. *Senoculus canaliculatus*, ♀: 4 *a*, vulva.
5. *Tama mexicana*, ♂, bulb of palpus.
6. *Tama mexicana*, ♀, eyes from above; 6 *a*, ditto from in front; 6 *b*, spinners from beneath; 6 *c*, vulva.
7. *Tama forcipata*, ♂, bulb of palpus.
8. *Zorocrates fuscus*, ♂, bulb of palpus; 8 *a*, tibia and tarsus of palpus from beneath.
9. *Zorocrates fuscus*, ♀: 9 *a*, eyes from in front; 9 *b*, spinners from beneath; 9 *c*, protarsus iv.; 9 *d*, vulva.
10. *Zorocrates mistus*, ♂, bulb of palpus; 10 *a*, tibia and tarsus of palpus from the outer side.
11. *Zorocrates mistus*, ♀, vulva.
12. *Acanthoctenus spinigerus*, ♂, bulb of palpus; 12 *a*, patella, tibia, and tarsus of palpus from above.
13. *Acanthoctenus spinigerus*, ♀: 13 *a*, eyes from in front; 13 *b*, spinners from beneath; 13 *c*, protarsus iv.; 13 *d*, calamistrum on ditto, enlarged; 13 *e*, vulva.
14. *Acanthoctenus spinipes*, ♂, bulb of palpus; 14 *a*, patella, tibia, and tarsus of palpus from above.
15. *Acanthoctenus spinipes*, ♀, vulva.
16. *Metafecenia albolineata*, ♂, bulb of palpus; 16 *a*, tibia of palpus from above, showing spur; 16 *b*, right palpus.
17. *Metafecenia albolineata*, ♀, eyes from in front; 17 *a*, cribellum and base of anterior pair of spinners.
18. *Dictyna parietalis*, ♂, tibia and tarsus of palpus from beneath.
19. *Dictyna parietalis*, ♀, vulva.
20. *Dictyna niveus*, ♂, bulb of palpus; 20 *a*, ditto from beneath.
21. *Dictyna niveus*, ♀, vulva.
22. *Dictyna grandis*, ♀, protarsus iv., with calamistrum; 22 *a*, cribellum and anterior pair of spinners; 22 *b*, vulva.
23. *Temecula mexicana*, ♂, tibia and tarsus of palpus from beneath.
24. *Temecula mexicana*, ♀, cribellum and base of anterior pair of spinners; 24 *a*, eyes from above; 24 *b*, protarsus iv., with calamistrum; 24 *c*, vulva.

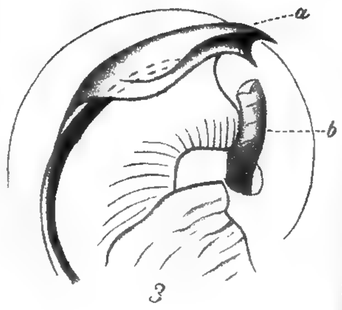
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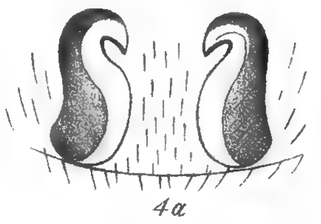


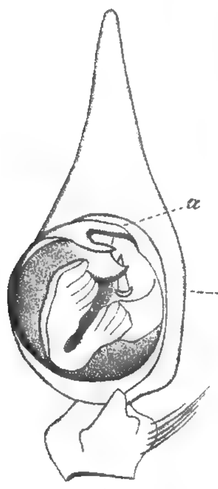
1b


2



3


4a

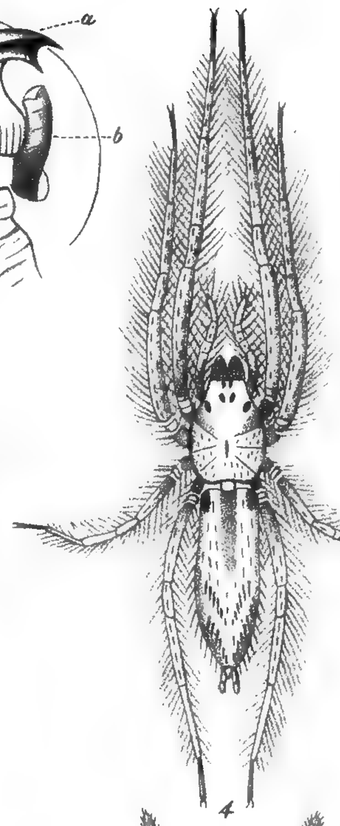


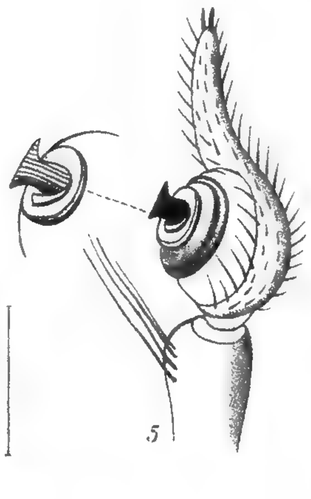
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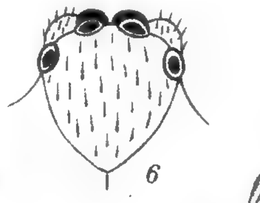


1a


6b


4


5

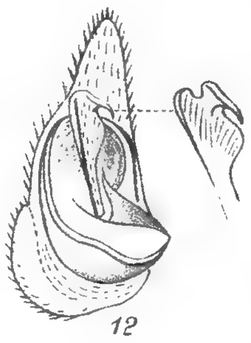

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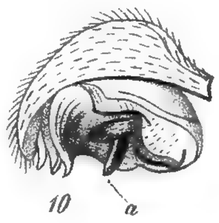

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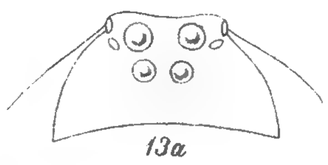

6a


6c


11

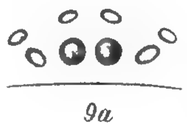

12


10


13a

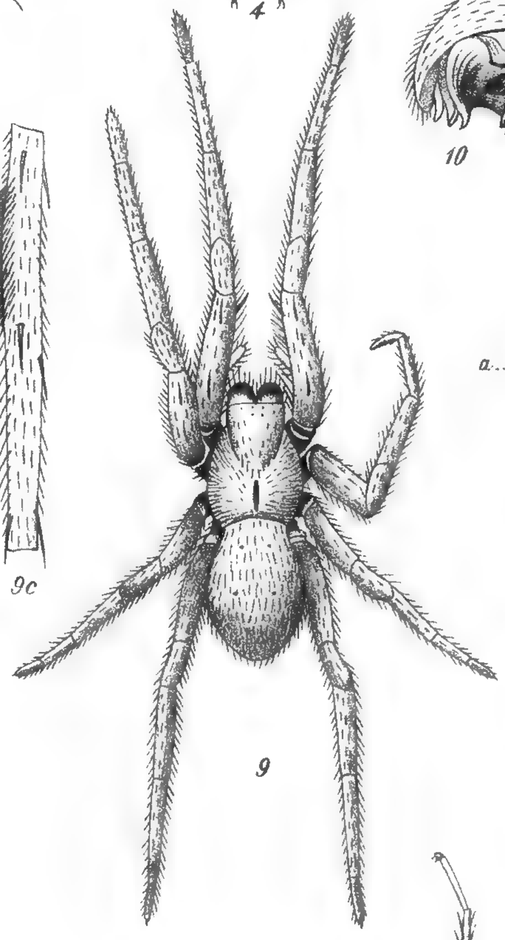

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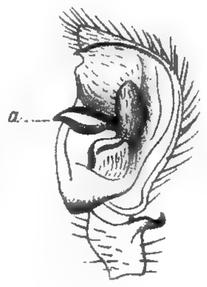

8a

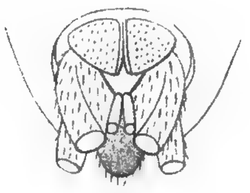

9a


9b

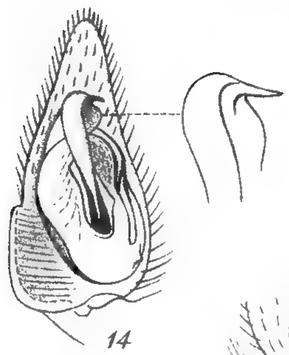

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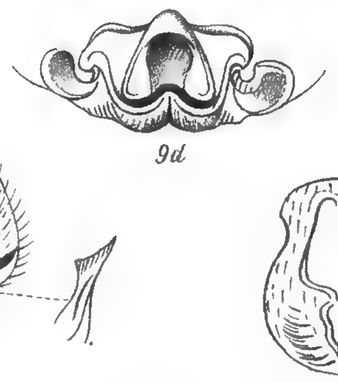

9


10a


13b


12a


14

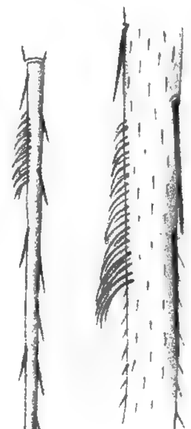

14a


15

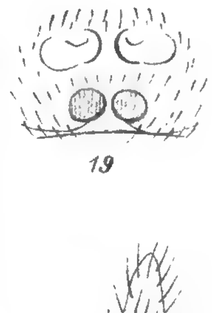

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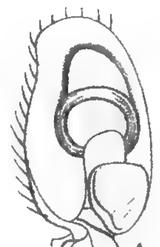

17a


13e

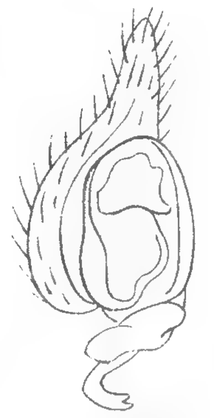

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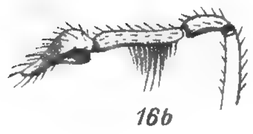

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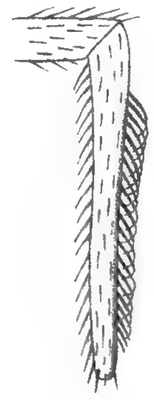

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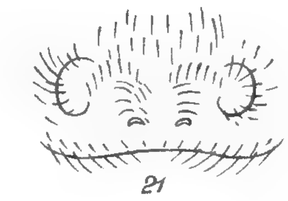

18


20


20a


16b

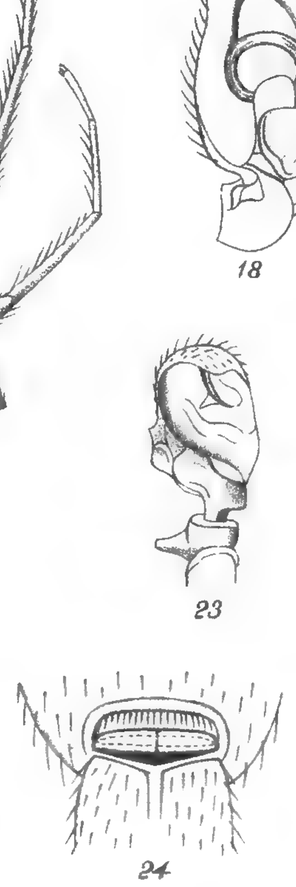

22


21


22b


22a


23


13


24


24a


24c


24b

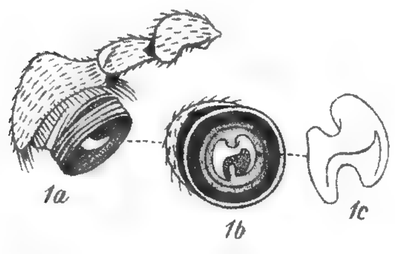
1, 1a, b ♂ SENOCULUS PROLATUS.
2 ♀ " "
3 ♂ " CANALICULATUS.
4, 4a ♀ " "
5 ♂ TAMA MEXICANA.
6, 6a-c ♀ " "
7 ♂ " FORCIPATA.
8, 8a ♂ ZOROCRATES FUSCUS.
9, 9a-d ♀ ZOROCRATES FUSCUS.
10, 10a ♂ " MISTUS.
11 ♀ " "
12, 12a ♂ ACANTHOCTENUS SPINIGERUS.
13, 13a-e ♀ " "
14, 14a ♂ " SPINIPES.
15 ♀ " "
16, 16a, b ♂ METAFECENIA ALBOLINEATA.
17, 17a ♀ " "
18 ♂, 19 ♀ DICTYNA PARIETALIS.
20, 20a ♂ " NIVEUS
21 ♀ " "
22, 22a, b ♀ " GRANDIS.
23 ♂ TEMECULA MEXICANA
24, 24a-c ♀ " "

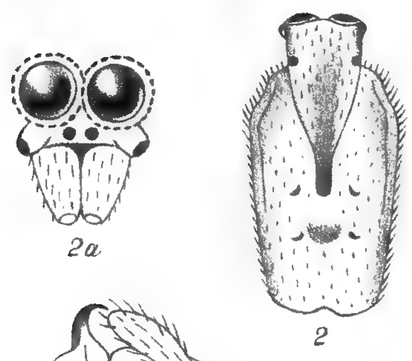
# PLATE XXXIV.

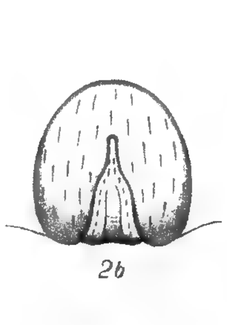
Fig. 1. *Deinopis longipes*, ♂ : 1 *a*, palpus ; 1 *b*, underside of bulb ; 1 *c*, central process of ditto.
2. *Deinopis longipes*, ♀ , carapace, from above ; 2 *a*, eyes from in front ; 2 *b*, vulva.
3. *Deinopis auritus*, ♂ , palpus.
4. *Deinopis auritus*, ♀ , vulva ; 4 *a*, carapace from above ; 4 *b*, eyes from in front ; 4 *c*, lateral view of spider, legs removed ; 4 *d*, spinners from beneath ; 4 *e*, protarsus iv., with calamistrum.
5. *Uloborus signatus*, ♂ , palpus.
6. *Uloborus signatus*, ♀ , vulva from in front ; 6 *a*, ditto from above and behind.
7. *Uloborus vicinus*, ♀ , vulva from in front ; 7 *a*, ditto from behind.
8. *Uloborus variegatus*, ♀ , vulva from above ; 8 *a*, lateral view.
9. *Uloborus geniculatus*, ♂ , palpus ; 9 *a*, bulb from beneath.
10. *Uloborus geniculatus*, ♀ , with egg-cocoons, and ♂ : 10 *a*, eyes from above ; 10 *b*, protarsus iv., with calamistrum ; 10 *c*, spinners from beneath ; 10 *d*, vulva ; 10 *e*, ditto, another view.
11. *Uloborus cinereus*, ♀ , vulva.
12. *Uloborus spernax*, ♀ , vulva.
13. *Miagrammopes mexicanus*, ♀ : 13 *a*, carapace from above.
14. *Miagrammopes alboguttatus*, ♀ : 14 *a*, carapace from above ; 14 *b*, spinners from beneath ; 14 *c*, protarsus iv., with calamistrum.
15. *Artema atlanta*, ♂ , palpus from the inner side ; 15 *a*, ditto from the outer side ; 15 *b*, mandibles from in front.
16. *Artema atlanta*, ♀ : 16 *a*, ventral aspect of abdomen.
17. *Modisimus inornatus*, ♂ , palpus from the outer side ; 17 *a*, eyes from in front ; 17 *b*, mandibles from in front.
18. *Modisimus inornatus*, ♀ , ventral aspect of abdomen, showing vulva.
19. *Modisimus propinquus*, ♂ , mandibles from in front ; 19 *a*, palpus from the outer side ; 19 *b*, ditto, another view.
20. *Modisimus maculatipes*, ♀ , vulva.
21. *Modisimus putus*, ♀ , vulva.
22. *Physocyclus globosus*, ♂ , palpus from the outer side ; 22 *a*, process of bulb, enlarged ; 22 *b*, mandibles from in front.
23. *Physocyclus globosus*, ♀ , lateral view, legs removed.

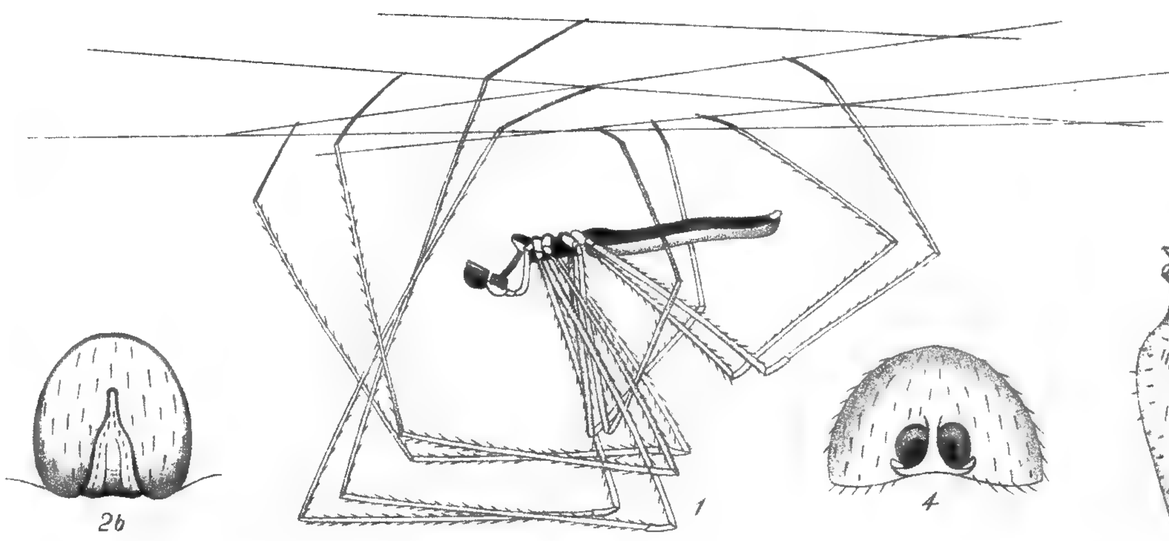
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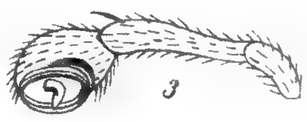
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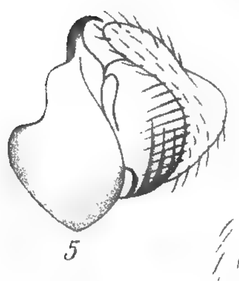


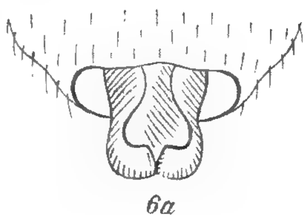


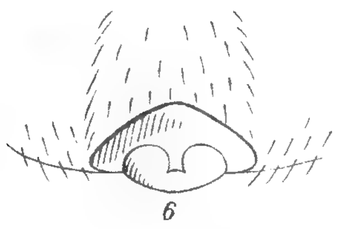






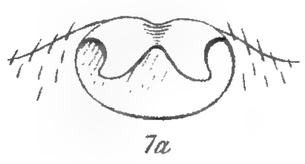


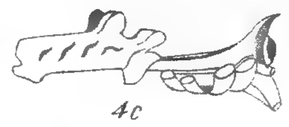


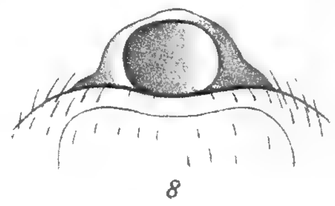










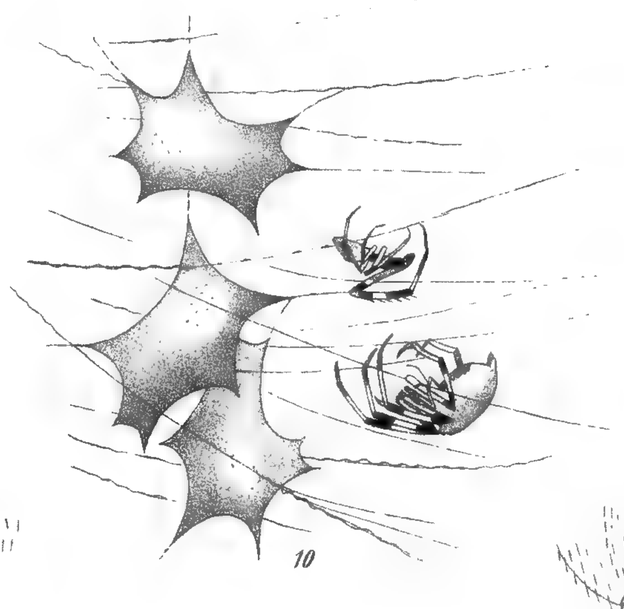






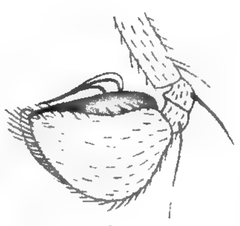






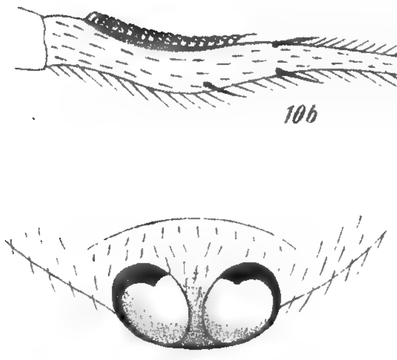






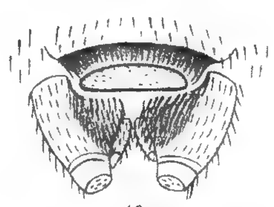


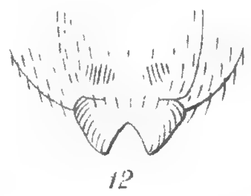


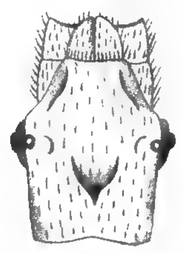


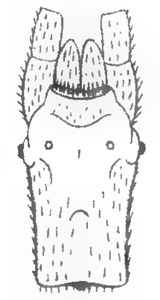


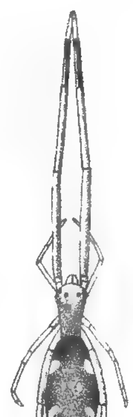




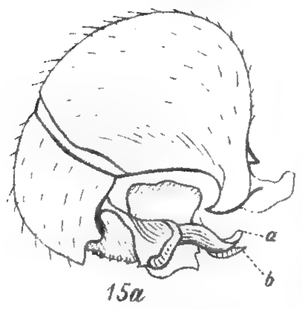



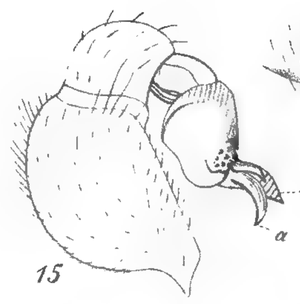















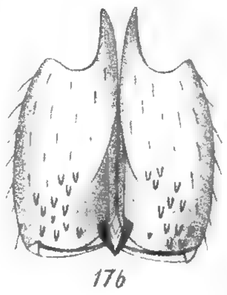






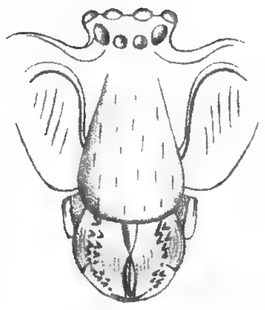


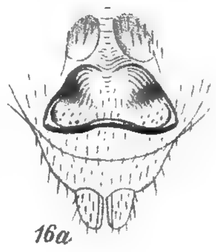






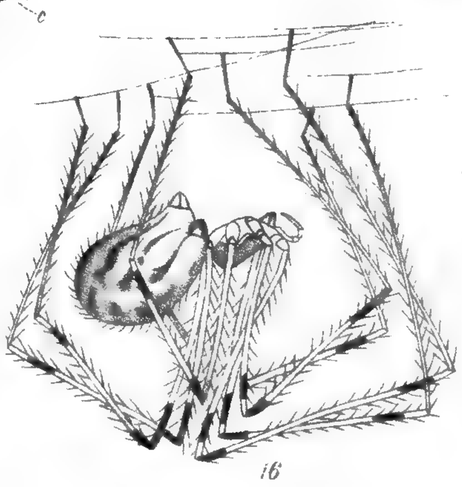


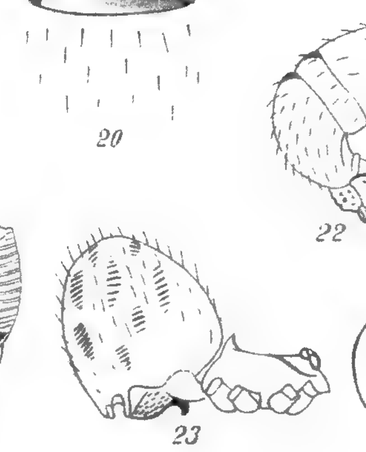


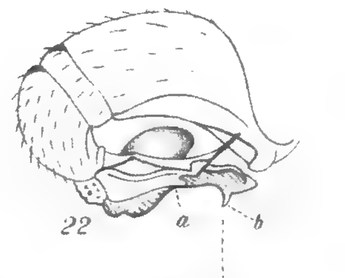







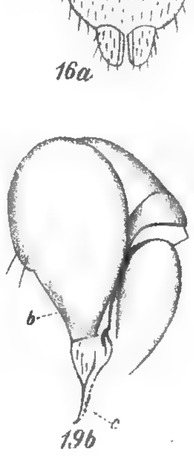


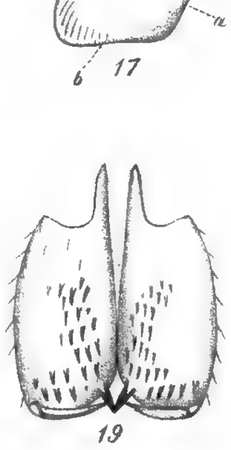



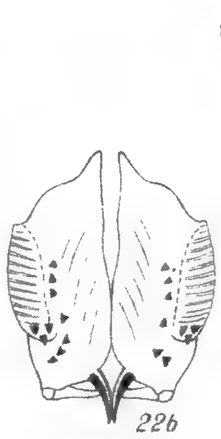
















1,1a-c ♂ DEINOPIS LONGIPES.
2,2a,b ♀ " "
3 ♂ " AURITUS.
4,4a-e ♀ " "
5 ♂ ULOBORUS SIGNATUS.
6,6a ♀ " "
7,7a ♀ " VICINUS.
8,8a ♀ " VARIEGATUS.

9,9a ♂ ULOBORUS GENICULATUS.
10,10a-e ♀ " "
11 ♀ " CINEREUS.
12 ♀ " SPERNAX.
13,13a ♀ MIAGRAMMOPES MEXICANUS.
14,14a-c ♀ " ALBOGUTTATUS.
15,15a,b ♂ ARTEMA ATLANTA.

16,16a ♀ ARTEMA ATLANTA.
17,17a,b ♂ MODISIMUS INORNATUS.
18 ♀ " "
19,19a,b ♂ " PROPINQUUS.
20 ♀ " MACULATIPES.
21 ♀ " PUTUS.
22,22a,b ♂ PHYSOCYCLUS GLOBOSUS.
23 ♀ "

F O. Pickard Cambridge, del.

E. Wilson, Cambridge.

VOL. II.

# PLATE XXXV.

Fig. 1. *Physocyclus dugesi*, ♂, palpus from the outer side; 1 *a*, ditto from in front; 1 *b*, mandible from the outer side; 1 *c*, ditto from in front; 1 *d*, eyes and clypeus from in front.

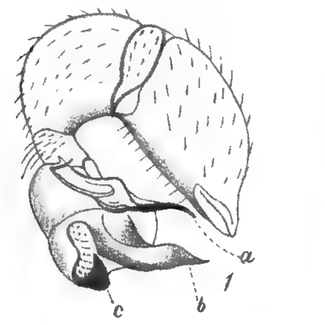
2. *Physocyclus dugesi*, ♀, profile view, legs removed; 2 *a*, vulva from above; 2 *b*, ditto in profile.
3. *Physocyclus rotundus*, ♀, vulva from above; 3 *a*, ditto in profile, showing the spinners also; 3 *b*, genital rima.
4. *Spermophora placens*, ♀, dorsal view, legs removed; 4 *a*, underside of abdomen, showing spinners.
5. *Metagonia caudata*, ♂, palpal bulb from the outer side; 5 *a*, mandibles from in front.
6. *Micromerys delicatus*, ♂, palpal bulb from the outer side; 6 *a*, ditto from in front.
7. *Coryssocnemis simoni*, ♀, profile view, legs removed; 7 *a*, vulva from above; 7 *b*, ditto in profile.
8. *Coryssocnemis furcula*, ♀, abdomen in profile; 8 *a*, vulva from above; 8 *b*, ditto in profile.
9. *Teutana grossa*, ♂, palpus, side view; 9 *a*, ditto from beneath.
10. *Teutana grossa*, ♀, eyes from in front; 10 *a*, vulva.
11. *Wamba congener*, ♂, eyes from above; 11 *a*, tibia and tarsus of palpus.
12. *Stearodea americana*, ♀, eyes from in front; 12 *a*, vulva.
13. *Lithyphantes quæsitus*, ♂, tibia and tarsus of palpus; 13 *a*, ditto, another view.
14. *Lithyphantes nigrofemoratus*, ♀, vulva.
15. *Lithyphantes lugubris*, ♀, eyes from in front; 15 *a*, spinners from beneath, showing colulus; 15 *b*, vulva; 15 *c*, ditto, from an immature specimen.
16. *Asagena alticeps*, ♂, patella, tibia, and tarsus of palpus; 16 *a*, ditto from the other side.
17. *Asagena quadrimaculata*, ♂, palpus from above; 17 *a*, ditto, another view.
18. *Asagena mœsta*, ♀, vulva.
19. *Latrodectus mactans*, ♂, bulb of palpus, showing embolus; 19 *a*, eyes from above.
20. *Latrodectus mactans*, ♀, dorsal view; 20 *a*, ditto, variety, dorsal view, legs removed; 20 *b*, ditto, variety; 20 *c*, ditto, variety; 20 *d*, ditto, variety; 20 *e*, ditto, variety; 20 *f*, ditto, immature example; 20 *g*, ditto, immature example; 20 *h*, ditto, variety tending towards *L. geographicus*; 20 *i*, vulva.
21. **Latrodectus geographicus*, ♂, eyes from above.
22. **Latrodectus geographicus*, ♀, dorsal view, legs removed.
23. **Latrodectus geometricus*, ♂, eyes from above.
24. **Latrodectus geometricus*, ♀, dorsal view, legs removed; 24 *a*, ditto, dark variety.

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* Figures 21–24 are inserted for comparison; they are taken from specimens from Santarem.

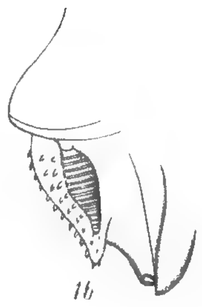
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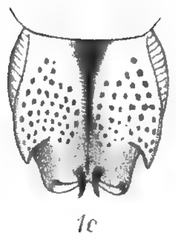
The small letters, unless otherwise stated, refer to similar portions of structure.

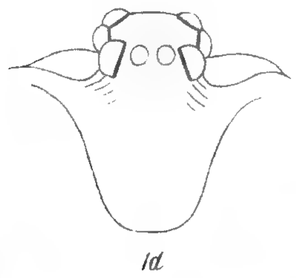


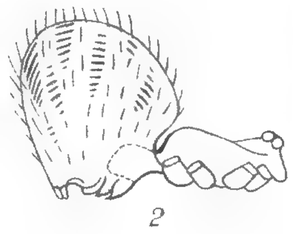


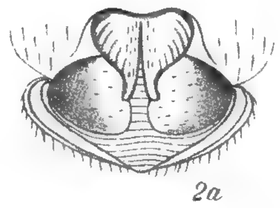


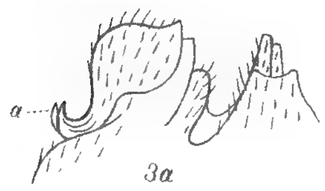

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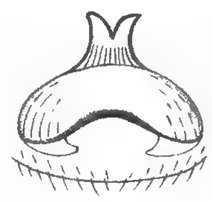

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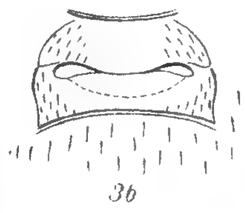

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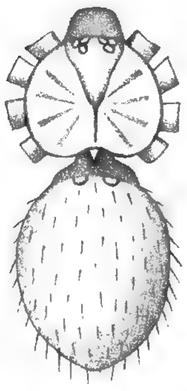

2


2a


3a


3

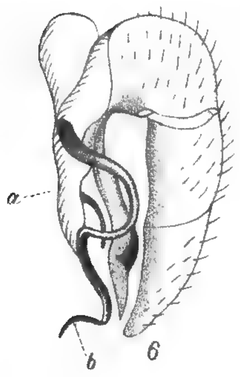

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4


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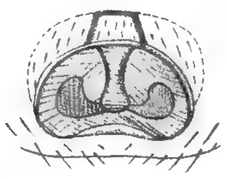

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5a


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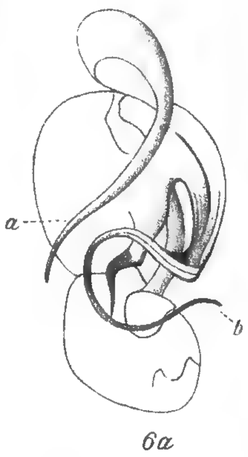

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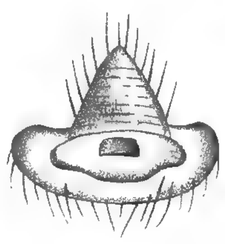

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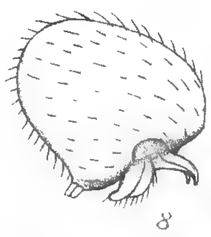

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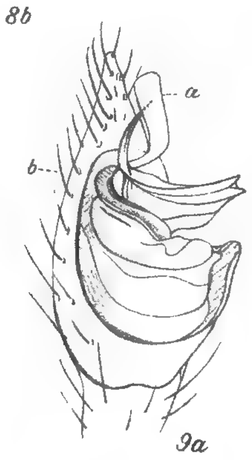

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6a


7a

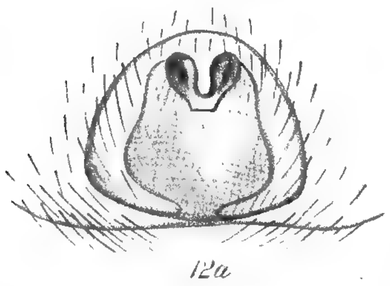

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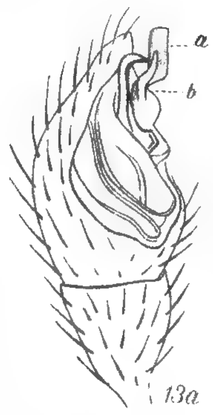

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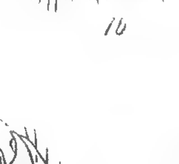

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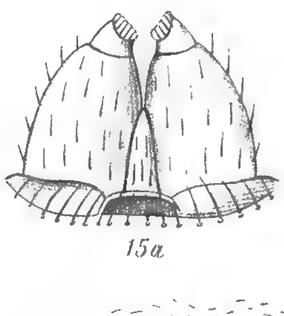

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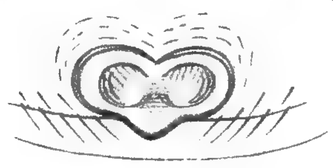

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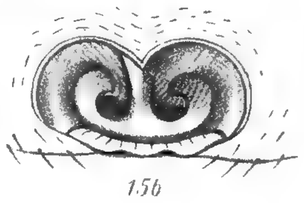

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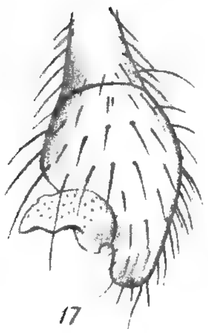

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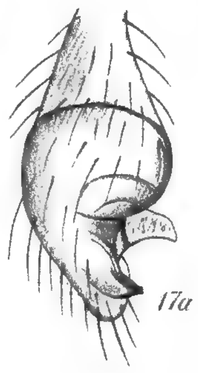

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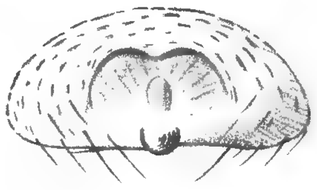

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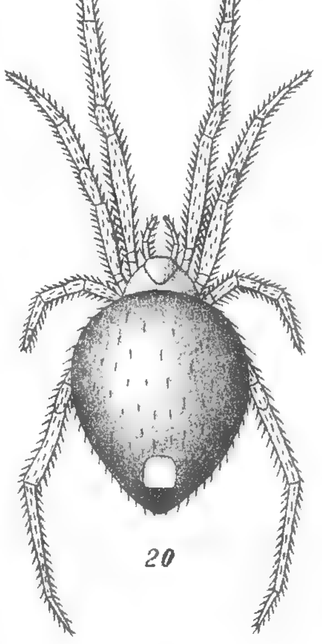

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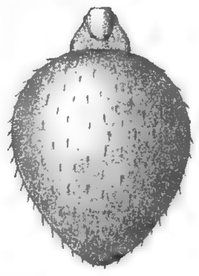

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17a


18


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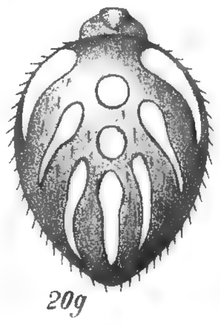

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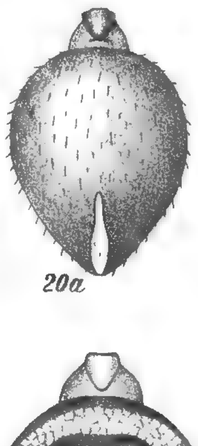

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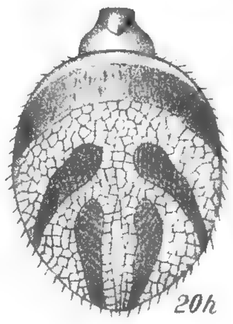

16a


19


19a

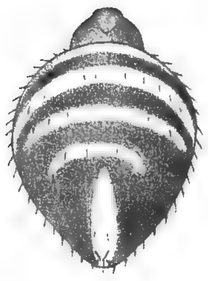

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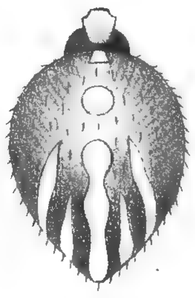

20a


20h

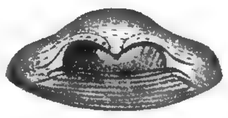

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20f


20c

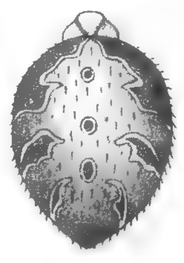

20d


20e


20i


22


24


24a

1, 1a-d♂ PHYSOCYCLUS DUGESI.
2, 2a, b♀ " "
3, 3a, b♀ " ROTUNDUS.
4, 4a♀ SPERMOPHORA PLACENS.
5, 5a♂ METAGONIA CAUDATA.
6, 6a♂ MICROMERYS DELICATUS.
7, 7a, b♀ CORISSOCNEMIS SIMONI.
8 8a, b♀ " FURCULA.
9, 9a♂ TEUTANA GROSSA.
10, 10a♀ " "
11, 11a♂ WAMBA CONGENER.
12, 12a♀ STEARODEA AMERICANA.
13, 13a♂ LITHYPHANTES QUÆSITUS.
14♀ " NIGROFEMORATUS.
15, 15a-c♀ " LUGUBRIS.
16, 16a♂ ASAGENA ALTICEPS.
17, 17a♂ ASAGENA QUADRIMACULATA.
18♀ " MŒSTA
19, 19a♂ LATRODECTUS MACTANS
20, 20a-i♀ " "
21♂ " GEOGRAPHICUS.
22♀ " "
23♂ " GEOMETRICUS.
24, 24a♀ " "

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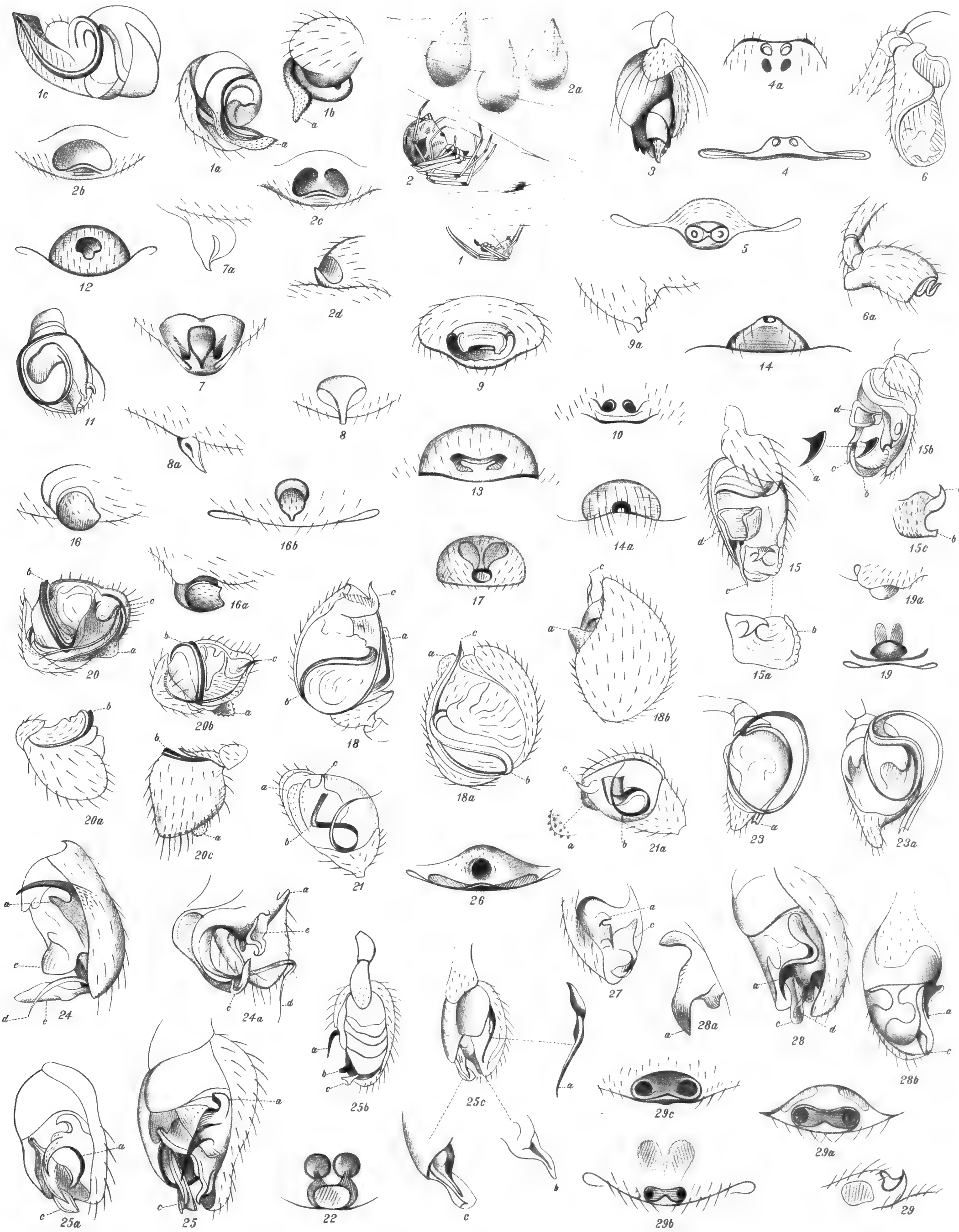
## PLATE XXXVI.

Fig. 1. *Steatoda tepidariorum*, ♂ : 1 *a*, apex of bulb of palpus ; 1 *b*, ditto, another view ; 1 *c*, ditto, enlarged.

2. *Steatoda tepidariorum*, ♀ : 2 *a*, egg-cocoons ; 2 *b*, vulva ; 2 *c*, ditto, variety ; 2 *d*, ditto, profile view.
3. *Steatoda tæniata*, ♂, bulb of palpus.
4. *Steatoda tæniata*, ♀, vulva from above and behind ; 4 *a*, ditto from in front.
5. *Steatoda florens*, ♀, vulva.
6. *Steatoda cavipalpus*, ♂, palpus ; 6 *a*, ditto, another view.
7. *Steatoda forda*, ♀, vulva from above ; 7 *a*, ditto, profile view.
8. *Steatoda mixta*, ♀, vulva from above ; 8 *a*, ditto, profile view.
9. *Steatoda oblivia*, ♀, vulva from above ; 9 *a*, ditto, profile view.
10. *Steatoda pura*, ♀, vulva.
11. *Steatoda transversa*, ♂, bulb of palpus.
12. *Steatoda compressa*, ♀, vulva.
13. *Steatoda aspersa*, ♀, vulva.
14. *Steatoda morula*, ♀, vulva from behind ; 14 *a*, ditto from above.
15. *Steatoda rufipes*, ♂, bulb of palpus ; 15 *a*, apical process, enlarged (example from Tunis) ; 15 *b*, bulb of palpus ; 15 *c*, apical process, enlarged (example from Central America).
16. *Steatoda rufipes*, ♀, vulva ; 16 *a*, ditto, more in profile ; 16 *b*, ditto from above.
17. *Steatoda munifex*, ♀, vulva.
18. *Steatoda albomaculata*, ♂, bulb of palpus ; 18 *a*, ditto, another view ; 18 *b*, ditto from above.
19. *Steatoda albomaculata*, ♀, vulva from above ; 19 *a*, ditto, profile view.
20. *Steatoda voluta*, ♂, bulb of palpus ; 20 *a*, ditto, another view ; 20 *b*, ditto ; 20 *c*, ditto from above.
21. *Steatoda rubicunda*, ♂, bulb of palpus ; 21 *a*, ditto, another view.
22. *Steatoda sexmaculata*, ♀, vulva.
23. *Steatoda longistylum*, ♂, bulb of palpus ; 23 *a*, ditto, another view.
24. *Theridion styligerum*, ♂, bulb of palpus ; 24 *a*, ditto, another view.
25. *Theridion evexum*, ♂, bulb of palpus ; 25 *a*, ditto, another view : enlarged figures ; 25 *b*, ditto ; 25 *c*, ditto, another view.
26. *Theridion evexum*, ♀, vulva.
27. *Theridion electum*, ♂, bulb of palpus.
28. *Theridion thorelli*, ♂, bulb of palpus ; 28 *a*, ditto, apical process enlarged ; 28 *b*, ditto, another view.
29. *Theridion thorelli*, ♀, vulva, profile view ; 29 *a*, ditto, from above ; 29 *b*, less enlarged, view from above ; 29 *c*, ditto, variety.

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The small letters, unless otherwise stated, refer to similar portions of structure.




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1,1a-c♂ | STEATODA | TEPIDARIORUM. | 11♂ | STEATODA | TRANSVERSA. | 20,20a-c♂ | STEATODA VOLUTA. |
| 2,2a d♀ | ” | ” | 12♀ | ” | COMPRESSA. | 21,21a♂ | ” RUBICUNDA. |
| 3♂,4,4a♀ | ” | TÆNIATA. | 13♀ | ” | ASPERSA. | 22♀ | ” SEXMACULATA. |
| 5♀ | ” | FLORENS. | 14,14a♀ | ” | MORULA. | 23,23a♂ | ” LONGISTYLUM. |
| 6,6a♂ | ” | CAVIPALPUS. | 15,15a-c♂ | ” | RUFIPES. | 24,24a♂ | THERIDION STYLIGERUM. |
| 7,7a♀ | ” | FORDA. | 16,16a,b♀ | ” | ” | 25,25a-c♂,26♀ | ” EVEXUM. |
| 8,8a♀ | ” | MIXTA. | 17♀ | ” | MUNIFEX. | 27♂ | ” ELECTUM. |
| 9,9a♀ | ” | OBLIVIA. | 18,18a,b♂ | ” | ALBOMACULATA. | 28,28a,b♂ | ” THORELLI. |
| 10♀ | ” | PURA. | 19,19a♀ | ” | ” | 29,29a-c♀ | ” ” |

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## PLATE XXXVII.

Fig. 1. *Theridion niveum*, ♂, tarsus of palpus; 1 *a*, ditto from beneath.
2. *Theridion niveum*, ♀, vulva.
3. *Theridion uncatum*, ♂, tarsus of palpus.
4. *Theridion trepidum*, ♂, tarsus of palpus; 4 *a*, ditto, another view.
5. *Theridion excavatum*, ♀, vulva; 5 *a*, ditto, profile view.
6. *Theridion vittatum*, ♂, tarsus of palpus; 6 *a*, ditto, another view.
7. *Theridion vittatum*, ♀, eyes; 7 *a*, vulva.
8. *Theridula nigrovittata*, ♂, patella, tibia, and tarsus of palpus.
9. *Theridula faceta*, ♂, patella, tibia, and tarsus of palpus.
10. *Theridula faceta*, ♀, vulva; 10 *a*, ditto from behind.
11. *Theridula opulenta*, ♀, legs and palpi removed; 11 *a*, vulva, profile view and view from above; 11 *b*, vulva from above, another example; 11 *c*, dorsal view, variety; 11 *d*, ditto, another variety.
12. **Anelosimus eximius*, ♂, bulb of palpus.
13. **Anelosimus eximius*, ♀, vulva.
14. *Anelosimus jucundus*, ♂, bulb of palpus from the inner side; 14 *a*, ditto from the outer side; 14 *b*, ditto, variety, from the outer side; 14 *c*, palpal organs, enlarged; 14 *d*, ditto from the inner side.
15. *Anelosimus jucundus*, ♀, at rest, with egg-cocoon, beneath a leaf; 15 *a*, vulva; 15 *b*, ditto, variety.
16. *Anelosimus studiosus*, ♂, bulb of palpus, from the outer side.
17. *Anelosimus studiosus*, ♀, vulva.
18. *Thwaitesia affinis*, ♂, tibia and tarsus of palpus.
19. *Thwaitesia affinis*, ♀, eyes from above; 19 *a*, vulva.
20. *Euryopis lineatipes*, ♂, bulb of palpus, view of apex.
21. *Euryopis lineatipes*, ♀, vulva.
22. *Euryopis spinigera*, ♂, bulb of palpus.
23. *Euryopis probabilis*, ♀, vulva.
24. *Euryopis proxima*, ♀, vulva.
25. *Episinus putus*, ♂, bulb of palpus; 25 *a*, ditto, apex enlarged.
26. *Episinus cognatus*, ♂, bulb of palpus; 26 *a*, ditto, apex enlarged.
27. *Episinus cognatus*, ♀, vulva.
28. *Spintharus flavidus*, ♂, bulb of palpus.
29. *Spintharus flavidus*, ♀: 29 *a*, ditto, variety, legs removed; 29 *b*, ditto, another variety; 29 *c*, ditto, another variety; 29 *d*, vulva.
30. *Achæa crocea*, ♂, bulb of palpus from above; 30 *a*, ditto from below.
31. *Achæa mendax*, ♂, bulb of palpus; 31 *a*, ditto, another view.

* These figures are taken from South-American specimens.

The small letters, unless otherwise stated, refer to similar portions of structure.

1,1a♂, 2♀ THERIDION NIVEUM.
3♀ " UNCATUM.
4,4a♂ " TREPIDUM.
5,5a♀ " EXCAVATUM.
6,6a♂ " VITTATUM.
7,7a♀ " "
8♂ THERIDULA NIGROVITTATA.
9♂,10,10a♀ " FACETA.
11,11a-d♀ THERIDULA OPULENTA.
12♂,13♀ ANELOSIMUS EXIMIUS.
14,14a-d♂ " JUCUNDUS.
15,15a,b♀ " "
16♂,17♀ " STUDIOSUS.
18♂,19,19a♀ THWAITESIA AFFINIS.
20♂,21♀ EURYOPIS LINEATIPES.
22♂ " SPINIGERA.
23♀ EURYOPIS PROBABILIS.
24♀ " PROXIMA.
25,25a♂ EPISINUS PUTUS.
26,26a♂,27♀ " COGNATUS.
28♂ SPINTHARUS FLAVIDUS.
29,29a-d♀ " "
30,30a♂ ACHÆA CROCEA.
31,31a♂ " MENDAX.

# PLATE XXXVIII.

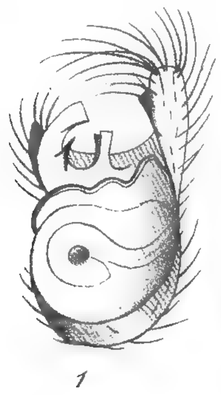
Fig. 1. *Argyrodes argentatus*, ♂, tarsus of palpus; 1 *a*, caput and eyes in profile.
2. *Argyrodes argentatus*, ♀, profile view; 2 *a*, view from in front.
3. *Argyrodes obtusus*, ♂, profile, legs removed; 3 *a*, tarsus of palpus; 3 *b*, eyes from above and in front; 3 *c*, carapace in profile.
4. *Argyrodes americanus*, ♂, profile; 4 *a*, tibia and tarsus of palpus; 4 *b*, ditto, another view; 4 *c*, carapace in profile; 4 *d*, eyes from in front.
5. **Argyrodes americanus*, ♀, vulva; 5 *a*, ditto, profile view.
6. *Argyrodes argenteomaculatus*, ♂, profile; 6 *a*, tibia and tarsus of palpus; 6 *b*, carapace in profile.
7. *Argyrodes trigonus*, ♂, profile; 7 *a*, tibia and tarsus of palpus; 7 *b*, carapace in profile.
8. *Argyrodes trigonus*, ♀, front view; 8 *a*, vulva; 8 *b*, ditto, profile view.
9. **Argyrodes argyrodes*, ♂, profile view; 9 *a*, caput, eyes, and mandibles in profile; 9 *b*, patella, tibia, and tarsus of palpus from above; 9 *c*, ditto from below; 9 *d*, ditto, palpal organs enlarged.
10. **Argyrodes argyrodes*, ♀, vulva.
11. *Argyrodes subdolus*, ♀, vulva; 11 *a*, ditto in profile.
12. *Argyrodes maculosus*, ♂, carapace in profile; 12 *a*, tarsus of palpus.
13. *Argyrodes maculosus*, ♀, vulva; 13 *a*, ditto in profile; 13 *b*, ditto, variety.
14. *Argyrodes jucundus*, ♀, profile, legs removed; 14 *a*, abdomen from in front; 14 *b*, vulva; 14 *c*, ditto in profile.
15. *Rhomphæa furcata*, ♀, profile; 15 *a*, ditto from in front; 15 *b*, vulva in profile.
16. *Rhomphæa bifissa*, ♀, profile; 16 *a*, abdomen from in front; 16 *b*, vulva in profile.
17. *Rhomphæa projiciens*, ♂, tarsus of palpus; 17 *a*, caput in profile.
18. *Rhomphæa projiciens*, ♀, profile view.
19. *Rhomphæa procera*, ♀, carapace in profile; 19 *a*, eyes from above and behind.
20. *Ariamnes gracillimus*, ♀, profile view; 20 *a*, carapace in profile; 20 *b*, eyes from above and behind.

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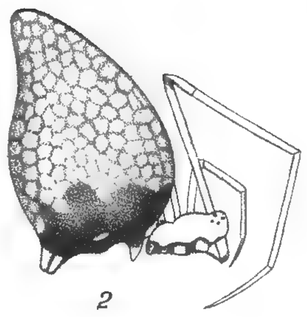
* Figures 9 and 10 are taken from European specimens, and fig. 5 from a South-American example.

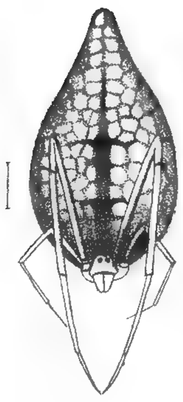
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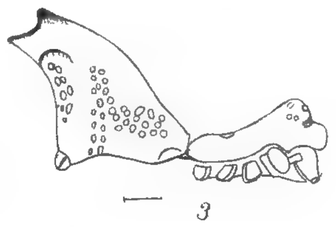
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1

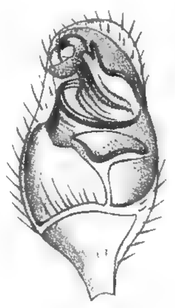

1a

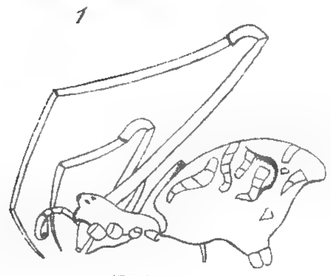

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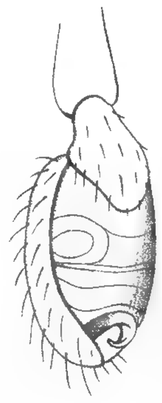

2a

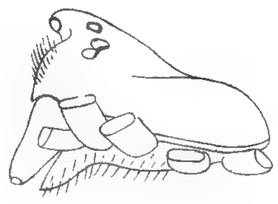

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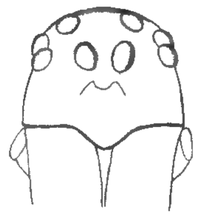

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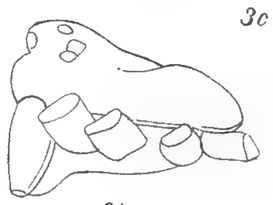

3a

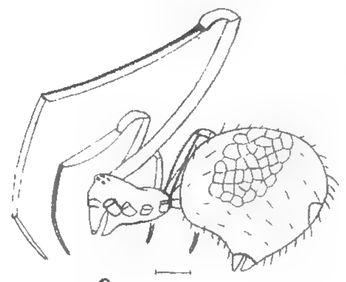

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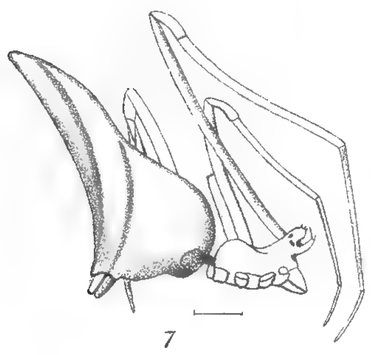

4a


4c

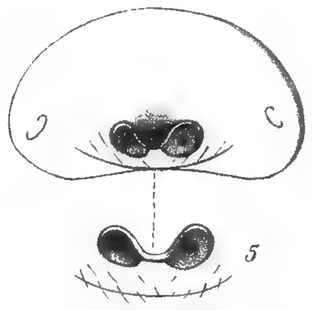

4d


6b

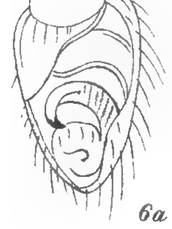

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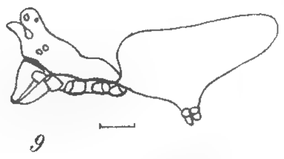

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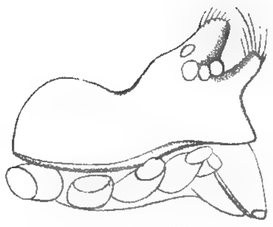

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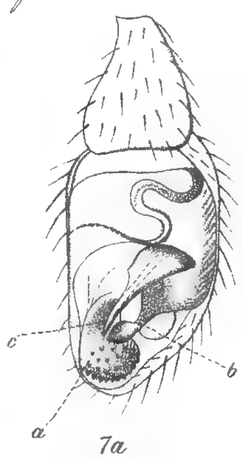

5a


6a

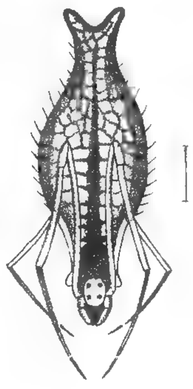

9a


9


7b

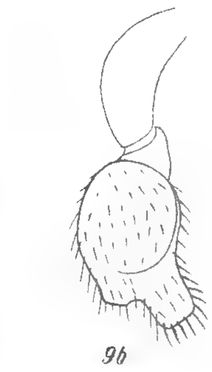

7a


8a

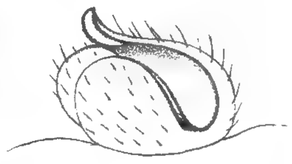

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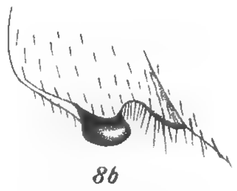

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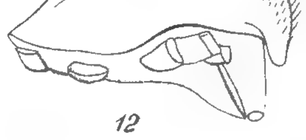

9c


9b

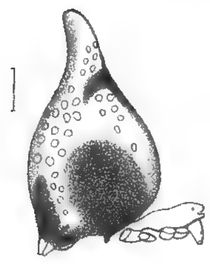

11


11a

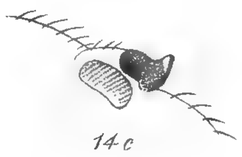

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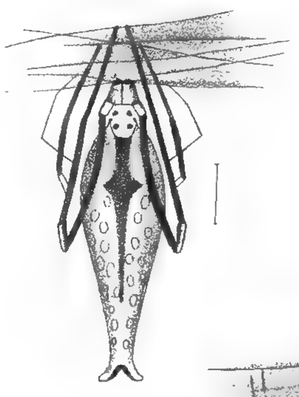

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13

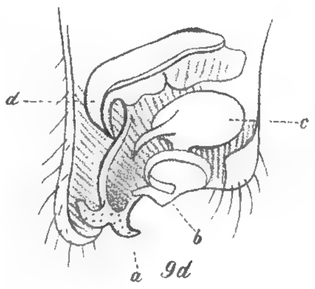

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14a

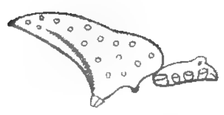

14c

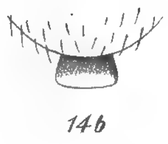

15a

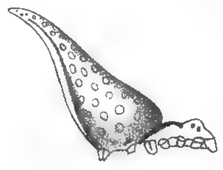

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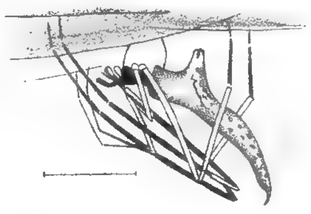

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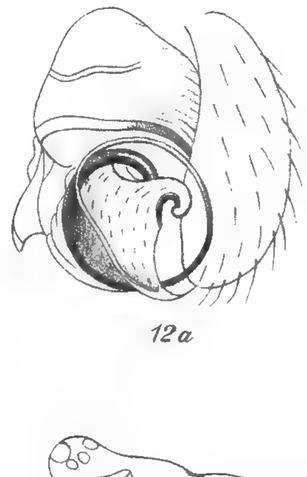

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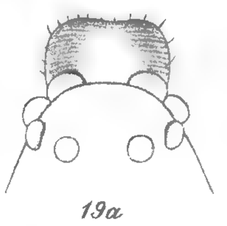

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14b


15

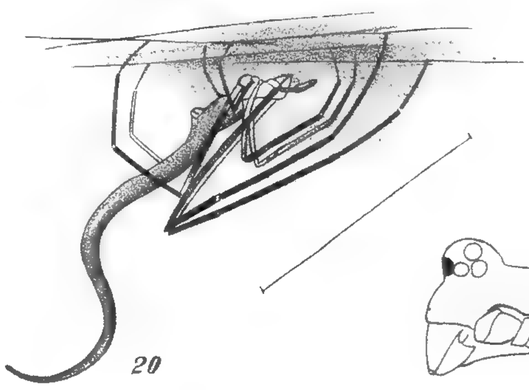

18


12a


19a


16a


15b


20


16b


17a


19


20a


20b

1,1a ♂ ARGYRODES ARGENTATUS.
2,2a ♀ " "
3,3a-c ♂ " OBTUSUS.
4,4a-d ♂ " AMERICANUS.
5,5a ♀ " "
6,6a,b ♂ " ARGENTEOMACULATUS.
7,7a,b ♂ " TRIGONUS.
8,8a,b ♀ ARGYRODES TRIGONUS.
9,9a-d ♂ " ARGYRODES.
10 ♀ " "
11,11a ♀ " SUBDOLUS.
12,12a ♂ " MACULOSUS.
13,13a,b ♀ " "
14,14a-c ♀ ARGYRODES JUCUNDUS.
15,15a,b ♀ RHOMPHÆA FURCATA.
16,16a,b ♀ " BIFISSA.
17,17a ♂ " PROJICIENS.
18 ♀ " "
19,19a ♀ " PROCERA.
20,20a,b ♀ ARIAMNES GRACILLIMUS.

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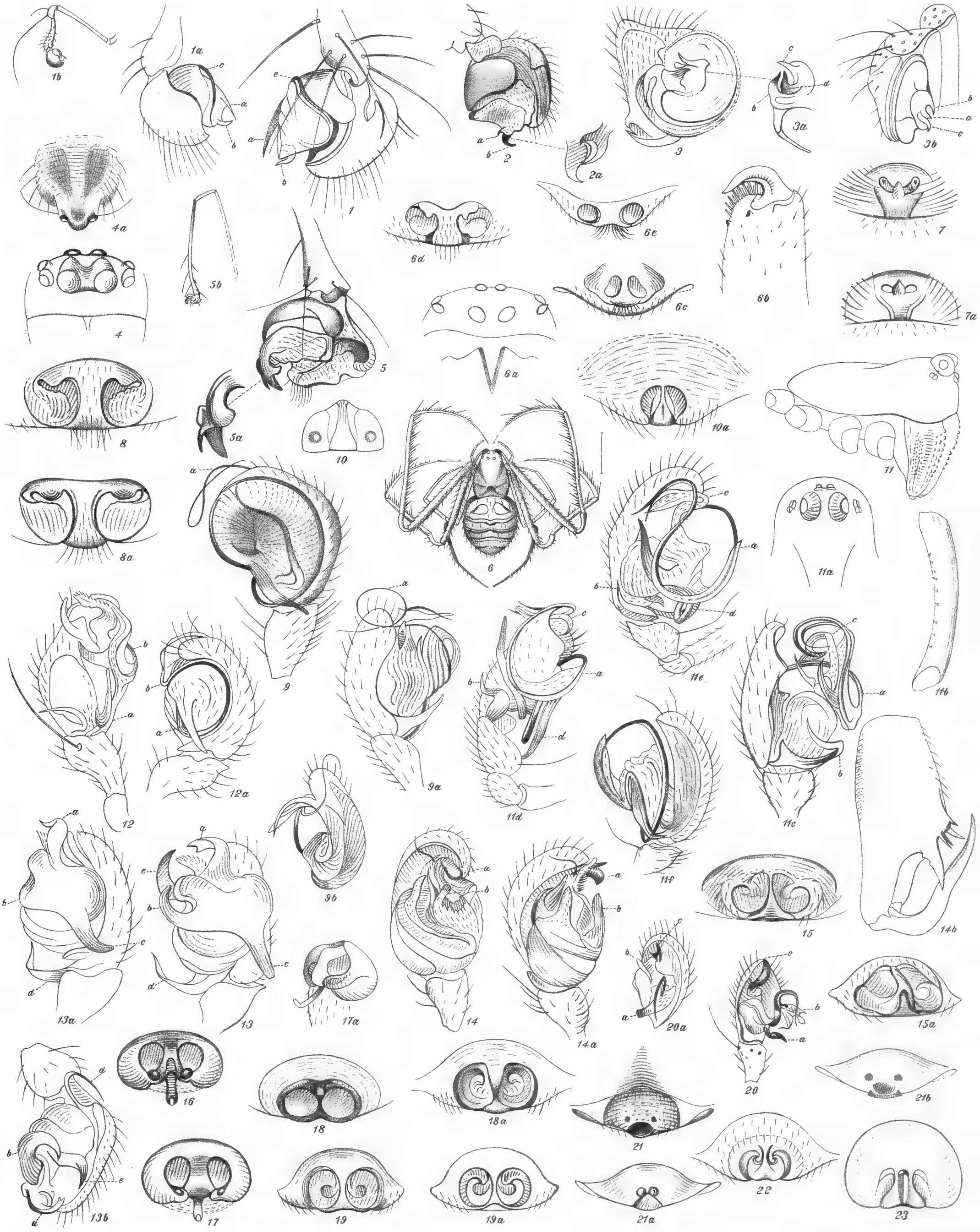
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# PLATE XXXIX.

Fig. 1. *Mimetus bigibbosus*, ♂, bulb of palpus; 1 *a*, ditto from the other side; 1 *b*, palpus, showing its general character.
2. *Mimetus crudelis*, ♂, bulb of palpus; 2 *a*, ditto, apical process enlarged.
3. *Mimetus rapax*, ♂, bulb of palpus; 3 *a*, ditto, apical process enlarged; 3 *b*, ditto, another view.
4. *Mimetus trituberculatus*, ♀, eyes from in front; 4 *a*, vulva.
5. *Galena mixta*, ♂, bulb of palpus; 5 *a*, ditto, apical process enlarged; 5 *b*, palpus, showing its general character.
6. *Galena mixta*, ♀: 6 *a*, eyes from in front; 6 *b*, mandible from beneath; 6 *c*, vulva from above; 6 *d*, ditto, rather more from above; 6 *e*, ditto from in front.
7. *Galena consequa*, ♀, vulva; 7 *a*, ditto, more from in front.
8. *Galena distincta*, ♀, vulva from in front; 8 *a*, ditto, more from above.
9. *Neriene longispina*, ♂, bulb of palpus from inner side; 9 *a*, ditto from outer side; 9 *b*, ditto, another view.
10. *Neriene longispina*, ♀, vulva; 10 *a*, ditto, variety.
11. *Neriene duplicata*, ♂, carapace in profile; 11 *a*, eyes from above; 11 *b*, femur of palpus, showing stridulating-cusps; 11 *c*, bulb of palpus; 11 *d*, ditto, another view; 11 *e*, ditto, another view; 11 *f*, ditto, another view.
12. *Neriene simplicata*, ♂, bulb of palpus; 12 *a*, ditto, another view.
13. *Neriene trifalcata*, ♂, bulb of palpus; 13 *a*, ditto, another view; 13 *b*, ditto, another view.
14. *Neriene gamma*, ♂, bulb of palpus; 14 *a*, ditto, another view; 14 *b*, mandible from below.
15. *Neriene pallida*, ♀, vulva; 15 *a*, ditto, from behind.
16. *Neriene emarginata*, ♀, vulva.
17. *Neriene convexa*, ♀, vulva; 17 *a*, ditto, lateral view.
18. *Neriene lambda*, ♀, vulva; 18 *a*, ditto, variety.
19. *Neriene nigrita*, ♀, vulva; 19 *a*, ditto, variety.
20. *Neriene bifasciata*, ♂, bulb of palpus; 20 *a*, ditto, another view.
21. *Neriene bifasciata*, ♀, vulva; 21 *a*, ditto, variety; 21 *b*, ditto, variety.
22. *Neriene linguatula*, ♀, vulva.
23. *Neriene limbata*, ♀, vulva.

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The small letters, unless otherwise stated, refer to similar portions of structure.




1, 1 a, b ♂ MIMETUS BIGIBBOSUS.
2, 2 a ♂ " CRUDELIS.
3, 3 a, b ♂ " RAPAX.
4, 4 a ♀ " TRITUBERCULATUS.
5, 5 a, b ♂ GALENA MIXTA.
6, 6 a-e ♀ " "
7, 7 a ♀ " CONSEQUA.
8, 8 a ♀ " DISTINCTA.

9, 9 a, b ♂ NERIENE LONGISPINA.
10, 10 a ♀ " "
11, 11 a-f ♂ " DUPLICATA.
12, 12 a ♂ " SIMPLICATA.
13, 13 a, b ♂ " TRIFALCATA.
14, 14 a, b ♂ " GAMMA.
15, 15 a ♀ " PALLIDA.

16 ♀ NERIENE EMARGINATA.
17, 17 a ♀ " CONVEXA.
18, 18 a ♀ " LAMBDA.
19, 19 a ♀ " NIGRITA.
20, 20 a ♂ " BIFASCIATA.
21, 21 a, b ♀ " "
22 ♀ " LINGUATULA.
23 ♀ " LIMBATA.

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# ARACHNIDA.—ARANEIDEA.

## Vol. II.

## PLATE XL.

Fig. 1. *Frontinella læta*, ♂, patella, tibia, and tarsus of palpus; 1 *a*, ditto, another view; 1 *b*, tibial spur of palpus; 1 *c*, eyes from above; 1 *d*, left mandible from the outer side; 1 *e*, ditto from beneath.

2. *Frontinella læta*, ♀, femur of palpus from the inner side; 2 *a*, vulva.

3. *Frontinella bicuspis*, ♂, palpus; 3 *a*, ditto, another view; 3 *b*, cephalic region and mandibles.

4. *Frontinella falculifera*, ♂, palpus; 4 *a*, ditto, tibia and bulb.

5. *Frontinella uncata*, ♂, palpus; 5 *a*, ditto, another view; 5 *b*, ditto, another view; 5 *c*, mandible from the outer side.

6. *Frontinella uncata*, ♀, vulva.

7. *Frontinella tibialis*, ♂, sternum; 7 *a*, palpus; 7 *b*, ditto, another view.

8. *Frontinella rustica*, ♀, vulva.

9. *Frontinella confinis*, ♀, vulva.

10. *Tetragnatha tropica*, ♂, mandible from above; 10 *a*, ditto from below; 10 *b*, palpus; 10 *c*, bulb of ditto; 10 *d*, ditto, another view.

11. *Tetragnatha tropica*, ♀, mandible from below; 11 *a*, ditto, variety.

12. *Tetragnatha guatemalensis*, ♂, bulb of palpus; 12 *a*, conductor and embolus; 12 *b*, ditto, another view; 12 *c*, ditto from the other side; 12 *d*, mandible from above (with scarcely any tooth visible at the base of the fang); 12 *e*, ditto; 12 *f*, ditto (with a distinct tooth at the base of the fang).

13. *Tetragnatha guatemalensis*, ♀, mandible from below.

14. *Tetragnatha dentigera*, ♂, bulb of palpus; 14 *a*, conductor and embolus; 14 *b*, ditto from the other side; 14 *c*, mandible from above (the large apical tooth is foreshortened in the drawing); 14 *d*, ditto from below.

15. *Tetragnatha alba*, ♂, bulb of palpus; 15 *a*, ditto, enlarged; 15 *b*, ditto from the other side; 15 *c*, mandible from above; 15 *d*, ditto from below.

16. *Tetragnatha tenuissima*, ♂, bulb of palpus; 16 *a*, ditto from the other side; 16 *b*, mandible from above; 16 *c*, ditto another view.

17. *Tetragnatha tenuissima*, ♀, mandible, from above, of an adult example; 17 *a*, ditto from below; 17 *b*, ditto, from above, of the type, an immature example; 17 *c*, ditto from below.

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The small letters, unless otherwise stated, refer to similar portions of structure.

1,1a-e ♂ FRONTINELLA LÆTA.
2,2a ♀ " "
3,3a,b ♂ " BICUSPIS.
4,4a ♂ " FALCULIFERA.
5,5a-c ♂ " UNCATA.
6 ♀ " "

7,7a,b ♂ FRONTINELLA TIBIALIS.
8 ♀ " RUSTICA.
9 ♀ " CONFINIS.
10,10a-d ♂ TETRAGNATHA TROPICA.
11,11a ♀ " "

12,12a-f ♂ TETRAGNATHA GUATEMALENSIS.
13 ♀ " "
14,14a-d ♂ " DENTIGERA.
15,15a-d ♂ " ALBA.
16,16a-c ♂ " TENUISSIMA.
17,17a-c ♀ " "

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## PLATE XLI.

Fig. 1. *Tetragnatha tenuis*, ♂, tarsus of palpus; 1 *a*, ditto from the other side; 1 *b*, mandible; 1 *c*, ditto from beneath.

2. *Tetragnatha tenuis*, ♀, mandible, upperside.

3. *Tetragnatha cognata*, ♂, tarsus of palpus; 3 *a*, ditto from the other side; 3 *b*, mandible, underside; 3 *c*, ditto, upperside.

4. *Tetragnatha cognata*, ♀, mandible, underside.

5. *Tetragnatha antillana*, , ♂ tarsus of palpus, showing:—*b*., bulb; *cy*., cymbium; *ts*., tarsal sheath; *t*., tuba or basal portion of embolus; *e*., embolus; *cd*., conductor. 5 *a*, ditto from the other side; 5 *b*, mandible, upperside, showing dorsal spur at *x*; 5 *c*, ditto, underside.

6. *Tetragnatha antillana*, ♀, mandible, upperside; 6 *a*, ditto, underside.

7. *Tetragnatha bidens*, ♂, tarsus of palpus; 7 *a*, ditto from the other side; 7 *b*, mandible, upperside; 7 *c*, ditto, underside.

8. *Tetragnatha mexicana*, ♂, tarsus of palpus; 8 *a*, ditto from the other side; 8 *b*, cymbium of ditto; 8 *c*, mandible, upperside; 8 *d*, ditto, underside.

9. *Tetragnatha mexicana*, ♀, mandible, underside.

10. *Tetragnatha gracilis*, ♂, tarsus of palpus; 10 *a*, ditto, conductor and embolus; 10 *b*, mandible, upperside.

11. *Tetragnatha gracilis*, ♀, mandible, upperside.

12. *Tetragnatha pallida*, ♂, tarsus of palpus; 12 *a*, ditto from the other side; 12 *b*, mandible, upperside.

13. *Tetragnatha pallida*, ♀, mandible, underside.

14. *Tetragnatha digitata*, ♂*, tarsus of palpus; 14 *a*, ditto from the other side; 14 *b*, mandible, upperside.

15. *Plesiometa argyra*, ♂, tarsus of palpus; 15 *a*, ditto from the other side, showing at *b* the bulb, at *e* the embolus, at *x* the spur on the tarsal sheath, at *xx* the spine at the base of the embolus; 15 *b*, spine at the base of the embolus, enlarged; 15 *c*, embolus, enlarged.

16. *Plesiometa argyra*, ♀, vulva, beneath; 16 *a*, ditto, viewed in profile.

17. *Leucauge mandibulata*, ♂, tarsus of palpus, showing the conductor at *c*, the embolus at *e*; 17 *a*, tibia and tarsus of palpus; 17 *b*, mandible in profile; 17 *c*, tarsus of palpus, showing apophysis of tarsal sheath at *x*.

18. *Leucauge mandibulata*, ♀, vulva.

19. *Leucauge longipes*, ♂, tarsus of palpus; 19 *a*, tibia and tarsus of palpus; 19 *b*, mandible in profile.

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* Wrongly marked ♀ on the Plate.

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The small letters, unless otherwise stated, refer to similar portions of structure.

1,1 a-c ♂ TETRAGNATHA TENUIS.
2 ♀ " "
3,3 a-c ♂ " COGNATA.
4 ♀ " "
5,5 a-c ♂ " ANTILLANA.
6,6 a ♀ " "

7,7 a-c ♂ TETRAGNATHA BIDENS.
8,8 a-d ♂ " MEXICANA.
9 ♀ " "
10,10 a,b ♂ " GRACILIS.
11 ♀ " "
12,12 a,b ♂ " PALLIDA.
13 ♀ " "

14,14 a,b ♀ TETRAGNATHA DIGITATA.
15,15 a-c ♂ PLESIOMETA ARGYRA.
16,16 a ♀ " "
17,17 a-c ♂ LEUCAUGE MANDIBULATA.
18 ♀ " "
19,19 a,b ♂ " LONGIPES.

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## PLATE XLII.

Fig. 1. *Leucauge venusta*, ♂, palpus; 1 *a*, ditto, apex of bulb, showing the embolus (*e*); 1 *b*, ditto, tarsus, showing the embolus (*e*) and cymbium (*c*); 1 *c*, mandible and maxilla in profile.
2. *Leucauge venusta*, ♀, vulva.
3. *Leucauge aurostriata*, ♂, bulb of palpus; 3 *a*, ditto, another view.
4. *Leucauge aurostriata*, ♀, vulva.
5. *Leucauge setigera*, ♂, bulb of palpus; 5 *a*, palpus, showing the short tibia; 5 *b*, mandible in profile.
6. *Leucauge mœrens*, ♂, palpus, patella, tibia, and tarsus; 6 *a*, ditto, bulb showing the embolus (*e*); 6 *b*, ditto, another view.
7. *Leucauge mœrens*, ♀, vulva.
8. *Leucauge fragilis*, ♀, vulva.
9. *Leucauge idonea*, ♀, vulva.
10. *Leucauge acuminata*, ♀, abdomen in profile; 10 *a*, vulva.
11. *Leucauge simplex*, ♀, vulva.
12. *Leucauge lugens*, ♀, profile view; 12 *a*, vulva.
13. *Leucauge mesomelas*, ♀, vulva.
14. *Mecynometa globosa*, ♀, vulva.
15. *Metargyra debilis*, ♂, palpus.
16. *Metargyra debilis*, ♀, vulva.
17. *Pseudometa flava*, ♂, bulb of palpus, showing apophysis (*b*); 17 *a*, ditto from the inner side; 17 *b*, ditto from above and behind.
18. *Pseudometa superans*, ♂, bulb of palpus, showing apophysis (*a*, *b*); 18 *a*, ditto, another view.
19. *Pseudometa uncata*, ♂, palpus; 19 *a*, ditto, another view.
20. *Pseudometa brevipes*, ♀, vulva; 20 *a*, ditto, variety.
21. *Pseudometa alboguttata*, ♀, vulva; 21 *a*, ditto, central tongue enlarged.
22. *Pseudometa decolorata*, ♀, vulva.
23. *Nephila clavipes*, ♂: 23 *a*, bulb of palpus; 23 *b*, ditto, another view.
24. *Nephila clavipes*, ♀: 24 *a*, spinners, posterior pair (1), median pair (2), anterior pair (3), colulus (*col.*), anal tubercle (*a*).
25. *Argyope argentata*, ♂, palpus, with embolus enlarged.
26. *Argyope argentata*, ♀: 26 *a*, vulva from behind; 26 *b*, ditto, profile view; 26 *c*, ditto from above.

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The small letters, unless otherwise stated, refer to similar portions of structure.

1, 1 a-c ♂ LEUCAUGE VENUSTA.
2 ♀ " "
3, 3 a ♂ " AUROSTRIATA.
4 ♀ " "
5, 5 a,b ♂ " SETIGERA.
6, 6 a,b ♂ " MŒRENS.
7 ♀ " "
8 ♀ " FRAGILIS.
9 ♀ " IDONEA.

10, 10 a ♀ LEUCAUGE ACUMINATA.
11 ♀ " SIMPLEX.
12, 12 a ♀ " LUGENS.
13 ♀ " MESOMELAS.
14 ♀ MECYNOMETA GLOBOSA.
15 ♂ METARGYRA DEBILIS.
16 ♀ " "
17, 17 a,b ♂ PSEUDOMETA FLAVA.

18, 18 a ♂ PSEUDOMETA SUPERANS.
19, 19 a ♂ " UNCATA.
20, 20 a,b ♀ " BREVIPES.
21, 21 a ♀ " ALBOGUTTATA.
22 ♀ " DECOLORATA.
23, 23 a,b ♂ NEPHILA CLAVIPES.
24, 24 a ♀ " "
25 ♂ ARGYOPE ARGENTATA.
26, 26 a-c ♀ " "

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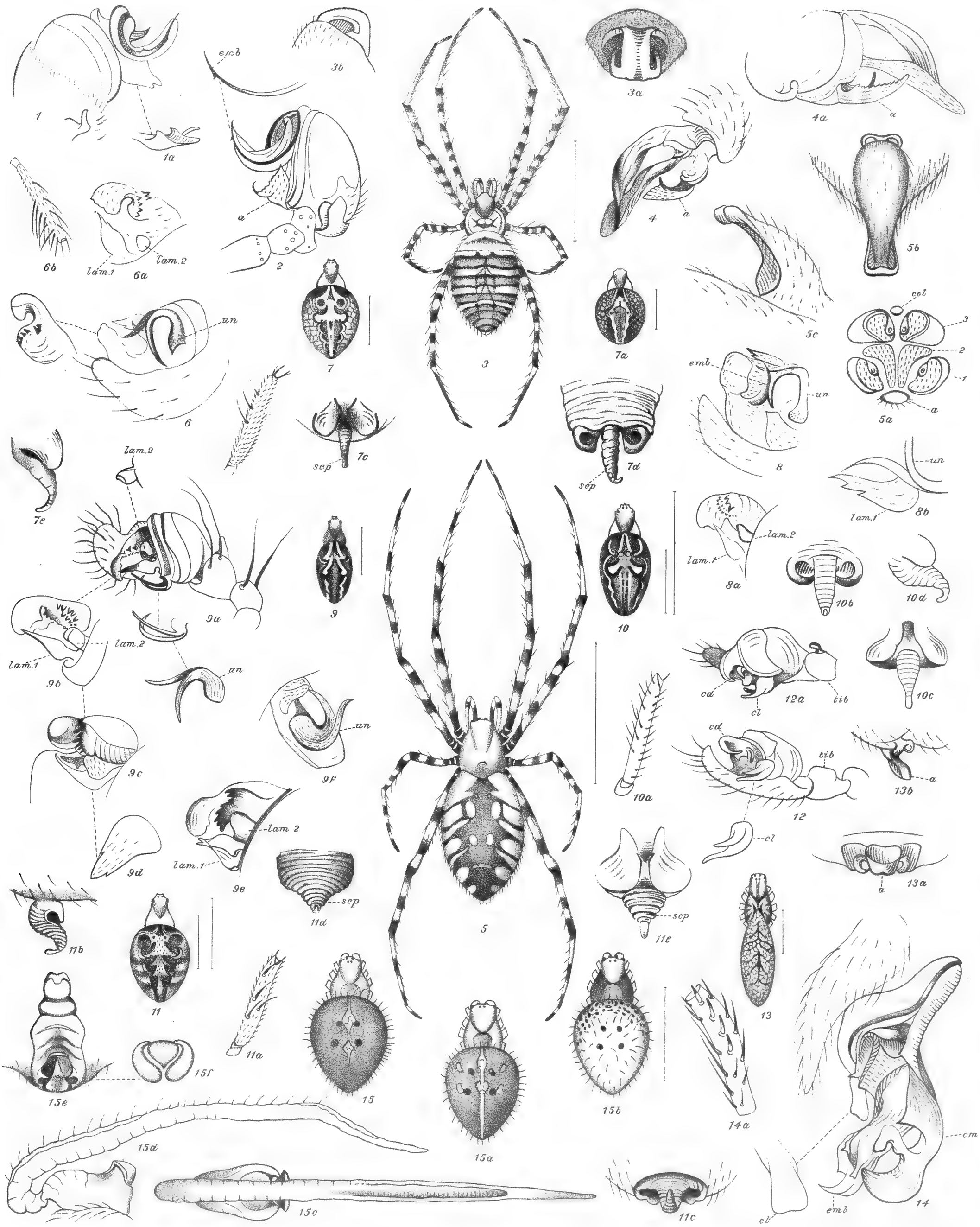
## PLATE XLIII.

Fig. 1. *Argyope blanda*, ♂, genital bulb; 1 *a*, conductor and embolus from beneath.
2. *Metargyope trifasciata*, ♂, genital bulb.
3. *Metargyope trifasciata*, ♀: 3 *a*, vulva; 3 *b*, ditto, profile view.
4. *Miranda cophinaria*, ♂, genital bulb, from inner side; 4 *a*, ditto from outer side.
5. *Miranda cophinaria*, ♀: 5 *a*, spinners, (1) posterior, (2) median, (3) anterior pair—(*col.*) colulus, (*a.*) anal tubercle; 5 *b*, scapus of vulva from above; 5 *c*, ditto, profile view.
6. *Metepeira labyrinthea*, ♂, genital bulb; 6 *a*, ditto, a portion enlarged; 6 *b*, femur i.
7. *Metepeira labyrinthea*, ♀: 7 *a*, variety; 7 *b*, femur i.; 7 *c*, scapus of vulva from below; 7 *d*, ditto from above and behind; 7 *e*, ditto, profile view.
8. *Metepeira uncata*, ♂, genital bulb; 8 *a*, ditto, a portion enlarged; 8 *b*, ditto, lamina 1 enlarged.
9. *Metepeira spinipes*, ♂: 9 *a*, genital bulb; 9 *b*, ditto, a portion enlarged; 9 *c*, ditto, same portion, another view; 9 *d*, ditto, lamina 1 enlarged; 9 *e*, ditto, same portion, another view; 9 *f*, ditto, showing bifid unca.
10. *Metepeira spinipes*, ♀, with nat. size and length of leg i.; 10 *a*, femur i.; 10 *b*, vulva from above and behind; 10 *c*, ditto from below; 10 *d*, ditto, profile view.
11. *Metepeira incrassata*, ♀, with nat. size and length of leg i.; 11 *a*, femur i.; 11 *b*, vulva, profile view; 11 *c*, ditto from behind; 11 *d*, ditto from above; 11 *e*, ditto from below.
12. *Drexelia directa*, ♂, genital bulb; 12 *a*, ditto, another view.
13. *Drexelia directa*, ♀: 13 *a*, vulva; 13 *b*, ditto, profile view.
14. *Eriophora purpurascens*, genital bulb; 14 *a*, tibia i.
15. *Eriophora purpurascens*, ♀: 15 *a*, ditto, var.; 15 *b*, ditto, var.; 15 *c*, vulval scapus from above; 15 *d*, ditto, profile view; 15 *e*, ditto, base, the scapus broken off; 15 *f*, ditto, base from behind.

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The small letters, unless otherwise stated, refer to similar portions of structure.

*cd.* = conductor; *cl.* = clavis; *cm.* = cymbium; *col.* = colulus; *emb.* = embolus; *lam.* = lamina; *scp.* = scapus; *tib.* = tibia; *un.* = unca.




1, 1a ♂ ARGYOPE BLANDA
2 ♂ METARGYOPE TRIFASCIATA.
3, 3a, b ♀ " "
4, 4a ♂ MIRANDA COPHINARIA.
5, 5a-c ♀ " "

6, 6a, b ♂ METEPEIRA LABYRINTHEA.
7, 7a-e ♀ " "
8, 8a, b ♂ " UNCATA.
9, 9a-f ♂ " SPINIPES.
10, 10a-d ♀ " "

11, 11a-e ♀ METEPEIRA INCRASSATA.
12, 12a ♂ DREXELIA DIRECTA.
13, 13a, b ♀ " "
14, 14a ♂ ERIOPHORA PURPURASCENS.
15, 15a-f ♀ " "

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## PLATE XLIV.

Fig. 1. *Eriophora edax*, ♂, genital bulb; 1 *a*, coxa and trochanter iv.; 1 *b*, coxa i.

2. *Eriophora edax*, ♀: 2 *a*, ditto, profile view; 2 *b*, ditto, variety; 2 *c*, ditto, variety; 2 *d*, base of vulva from behind; 2 *e*, scapus of vulva, in profile—*a*, carina; 2 *f*, ditto from above.

3. *Eriophora minax*, ♀: 3 *a*, ditto, var.; 3 *b*, base of scapus of vulva from above; 3 *c*, scapus of vulva in profile; 3 *d*, base of ditto from above, scapus broken off; 3 *e*, ditto from behind.

4. *Neoscona oaxacensis*, ♂, genital bulb—*emb.*=embolus, *cl.*=clavis; 4 *a*, tibia ii. from beneath; 4 *b*, ditto from inner side; 4 *c*, coxa i.; 4 *d*, coxa iv.; 4 *e*, clavis of genital bulb.

5. *Neoscona oaxacensis*, ♀: 5 *a*, ditto, variety; 5 *b*, vulval scapus from above; 5 *c*, ditto, profile view.

6. *Neoscona conifera*, ♂, tibia ii. from beneath; 6 *a*, ditto from inner side; 6 *b*, clavis of genital bulb.

7. *Neoscona conifera*, ♀: 7 *a*, vulval scapus from above; 7 *b*, ditto, profile view.

8. *Neoscona benjamina*, ♀: 8 *a*, vulval scapus from above; 8 *b*, ditto, profile view.

[9. *Neoscona theis*, ♂ (sec. Simon), tibia ii. from beneath; 9 *a*, ditto from inner side; 9 *b*, ditto, variety (sec. Thorell); 9 *c*, ditto, variety; 9 *d*, clavis of genital bulb.]

[10. *Neoscona theis*, ♀ (sec. Simon): 10 *a*, vulval scapus from above; 10 *b*, ditto, profile view; 10 *c*, ditto, variety (sec. Thorell); 10 *d*, ditto, variety.]

11. *Neoscona minima*, ♂, tibia ii. from beneath; 11 *a*, ditto from inner side; 11 *b*, clavis of genital bulb.

12. *Neoscona minima*, ♀: 12 *a*, vulval scapus from above; 12 *b*, ditto, profile view.

13. *Neoscona arabesca*, ♂, tibia ii. from above; 13 *a*, ditto from beneath; 13 *b*, ditto from inner side.

14. *Neoscona arabesca*, ♀: 14 *a*, vulval scapus from above; 14 *b*, ditto, profile view.

15. *Neoscona amulensis*, ♂, tibia ii. from beneath; 15 *a*, ditto from inner side; 15 *b*, clavis of genital bulb.

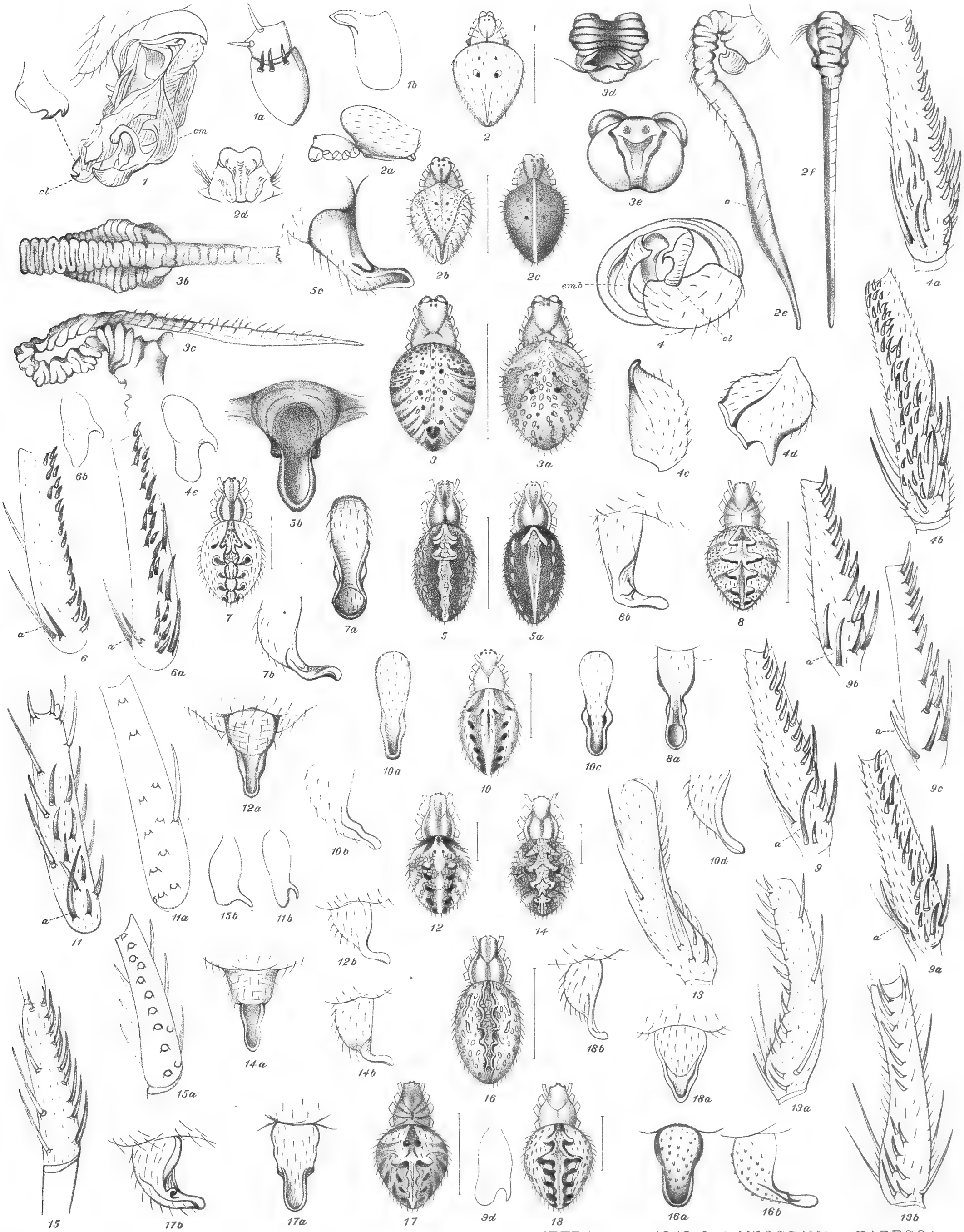
[16. *Neoscona cooksoni*, ♀: 16 *a*, vulval scapus from above; 16 *b*, ditto, profile view.]

17. *Neoscona orizabensis*, ♀: 17 *a*, vulval scapus from above; 17 *b*, ditto, profile view.

18. *Neoscona volucripes*, ♀: 18 *a*, vulval scapus from above; 18 *b*, ditto, profile view.

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The small letters, unless otherwise stated, refer to similar portions of structure.
Figures 9, 10, and 16 are inserted for comparison, the species not belonging to the Central-American fauna.




1,1a,b ♂ ERIOPHORA EDAX.
2,2a-f ♀ " "
3,3a-e ♀ " MINAX.
4,4a-e ♂ NEOSCONA OAXACENSIS.
5,5a-c ♀ " "
6,6a,b ♂ " CONIFERA.
7,7a,b ♀ NEOSCONA CONIFERA.
8,8a,b ♀ " BENJAMINA.
9,9a-d ♂ " THEIS.
10,10a-d ♀ " "
11,11a,b ♂ " MINIMA.
12,12a,b ♀ " "
13,13a,b ♂ NEOSCONA ARABESCA
14,14a,b ♀ " "
15,15a,b ♂ " AMULENSIS.
16,16a,b ♀ " COOKSONI.
17,17a,b ♀ " CRIZABENSIS.
18,18a,b ♀ " VOLUCRIPES.

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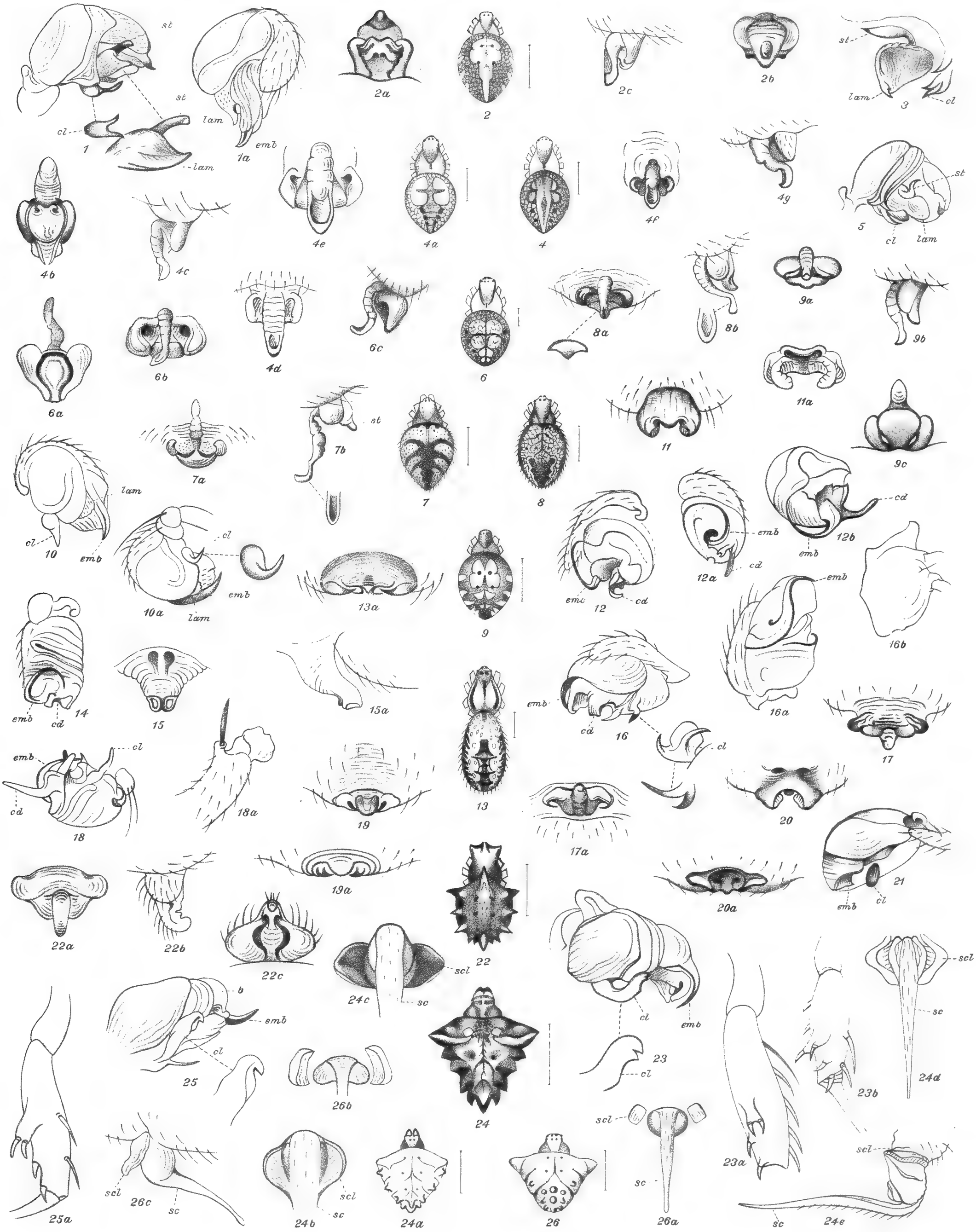
# PLATE XLV.

Fig. 1. *Neosconella styligera*, ♂, genital bulb, with organs enlarged; 1 *a*, ditto, another view.

2. *Neosconella styligera*, ♀: 2 *a*, vulva from behind; 2 *b*, ditto from above; 2 *c*, ditto, profile view.
3. *Neosconella solersioides*, ♂, genital bulb, special organs.
4. *Neosconella solersioides*, ♀: 4 *a*, ditto, variety; 4 *b*, vulva from behind; 4 *c*, ditto, profile view; 4 *d*, ditto from above; 4 *e*, ditto, variety; 4 *f*, ditto, smaller; 4 *g*, ditto, profile view.
5. *Neosconella lineatipes*, ♂, genital bulb.
6. *Neosconella lineatipes*, ♀: 6 *a*, vulva from behind; 6 *b*, ditto from above; 6 *c*, ditto, profile view.
7. *Neosconella expleta*, ♀: 7 *a*, vulva from behind; 7 *b*, ditto, profile view.
8. *Neosconella habilis*, ♀: 8 *a*, vulva from above; 8 *b*, ditto, profile view.
9. *Neosconella guttata*, ♀: 9 *a*, vulva from above; 9 *b*, ditto, profile view; 9 *c*, ditto from behind.
10. *Mangora bimaculata*, ♂, genital bulb; 10 *a*, ditto, another view.
11. *Mangora bimaculata*, ♀, vulva from above; 11 *a*, ditto from behind.
12. *Mangora calcarifera*, ♂, genital bulb; 12 *a*, ditto, another view; 12 *b*, ditto, another view.
13. *Mangora calcarifera*, ♀: 13 *a*, vulva from above.
14. *Mangora picta*, ♂, genital bulb.
15. *Mangora picta*, ♀, vulva from above; 15 *a*, ditto, profile view.
16. *Mangora mobilis*, ♂, genital bulb, with clavis enlarged; 16 *a*, ditto, another view; 16 *b*, coxa iv. showing tubercles.
17. *Mangora mobilis*, ♀, vulva from above; 17 *a*, ditto from behind.
18. *Mangora spinula*, ♂, genital bulb; 18 *a*, femur iv. showing spine.
19. *Mangora passiva*, ♀, vulva from above; 19 *a*, ditto more from behind.
20. *Mangora trilineata*, ♂, vulva from above; 20 *a*, ditto from behind.
21. *Marxia stellata*, ♂, genital bulb.
22. *Marxia stellata*, ♀: 22 *a*, vulva from above; 22 *b*, ditto, profile view; 22 *c*, ditto from behind.
23. *Verrucosa arenata*, ♂, genital bulb; 23 *a*, tibia ii., inner side; 23 *b*, ditto, variety.
24. *Verrucosa arenata*, ♀: 24 *a*, ditto, variety; 24 *b*, basal portion of scapus of vulva, showing lateral sclerites; 24 *c*, ditto of variety; 24 *d*, scapus of vulva, with sclerites, another variety; 24 *e*, ditto, profile view.
25. *Verrucosa* 11-*variolata*, ♂, genital bulb; 25 *a*, tibia ii., inner side.
26. *Verrucosa* 11-*variolata*, ♀: 26 *a*, vulva from above; 26 *b*, ditto, basal portion enlarged; 26 *c*, ditto, profile view.

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The small letters, unless otherwise stated, refer to similar portions of structure.




| | | |
|---|---|---|
| 1, 1 a ♂ | NEOSCONELLA | STYLIGERA. |
| 2, 2 a-c ♀ | ” | ” |
| 3 ♂ | ” | SOLERSIOIDES. |
| 4, 4 a-g ♀ | ” | ” |
| 5 ♂ | ” | LINEATIPES. |
| 6, 6 a-c ♀ | ” | ” |
| 7, 7 a, b ♀ | ” | EXPLETA. |
| 8, 8 a, b ♀ | ” | HABILIS. |
| 9, 9 a-c ♀ | ” | GUTTATA. |
| 10, 10 a ♂ | MANGORA | BIMACULATA. |
| 11, 11 a ♀ | ” | ” |
| 12, 12 a, b ♂ | ” | CALCARIFERA. |
| 13, 13 a ♀ | ” | ” |
| 14 ♂ | ” | PICTA. |
| 15, 15 a ♀ | ” | ” |
| 16, 16 a, b ♂ | ” | MOBILIS. |
| 17, 17 a ♀ | ” | ” |
| 18, 18 a ♂ | MANGORA | SPINULA. |
| 19, 19 a ♀ | ” | PASSIVA. |
| 20, 20 a ♀ | ” | TRILINEATA. |
| 21 ♂ | MARXIA | STELLATA. |
| 22, 22 a-c ♀ | ” | ” |
| 23, 23 a, b ♂ | VERRUCOSA | ARENATA. |
| 24, 24 a-e ♀ | ” | ” |
| 25, 25 a ♂ | ” | 11-VARIOLATA. |
| 26, 26 a-c ♀ | ” | ” |

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# PLATE XLVI.

Fig. 1. *Wixia gibbifera*, ♀: 1 *a*, ditto, profile view; 1 *b*, vulva from above; 1 *c*, ditto from behind; 1 *d*, ditto, profile view.
2. *Wixia clivosa*, ♂, genital bulb; 2 *a*, ditto, another view; 2 *b*, ditto, another view.
3. *Wixia clivosa*, ♀: 3 *a*, ditto, profile view; 3 *b*, vulva from above; 3 *c*, ditto from behind; 3 *d*, ditto, profile view.
4. *Wixia globosa*, ♀: 4 *a*, ditto, profile view; 4 *b*, vulva from above; 4 *c*, ditto from behind; 4 *d*, ditto, profile view.
5. *Wixia rufa*, ♀: 5 *a*, vulva from above; 5 *b*, ditto from behind; 5 *c*, ditto, profile view.
6. *Wixia subrufa*, ♀: 6 *a*, vulva from above; 6 *b*, ditto from behind; 6 *c*, ditto, profile view.
7. *Wixia turrigera*, ♀: 7 *a*, ditto, profile view.
8. *Wixia sicula*, ♂, genital bulb; 8 *a*, tibia ii. showing spinulation.
9. *Parawixia destricta*, ♂, genital bulb; 9 *a*, ditto, another view; 9 *b*, ditto, another view.
10. *Parawixia destricta*, ♀: 10 *a*, vulva from above; 10 *b*, ditto from behind; 10 *c*, ditto, profile view.
11. *Parawixia armata*, ♂, genital bulb; 11 *a*, ditto, another view; 11 *b*, ditto, another view.
12. *Parawixia hypocrita*, ♂, genital bulb; 12 *a*, ditto, another view.
13. *Parawixia hamata*, ♂, genital bulb; 13 *a*, ditto, another view.
14. *Parawixia guatemalensis*, ♀: 14 *a*, ditto, variety; 14 *b*, ditto, variety; 14 *c*, vulva from above; 14 *d*, ditto from behind; 14 *e*, ditto, profile view.
15. *Parawixia hoxæa*, ♀: 15 *a*, vulva from above; 15 *b*, ditto from behind; 15 *c*, ditto, profile view.
16. *Parawixia* 13-*notata*, ♀: 16 *a*, vulva from above; 16 *b*, ditto from behind; 16 *c*, ditto, profile view.
17. *Parawixia honesta*, ♀, vulva from above; 17 *a*, ditto from behind; 17 *b*, ditto, profile view.
18. *Parawixia rigida*, ♀: 18 *a*, vulva from above; 18 *b*, ditto from behind; 18 *c*, ditto, profile view.
19. *Cyclosa conica*, ♂, genital bulb; 19 *a*, ditto from beneath; 19 *b*, ditto, another view.
20. *Cyclosa conica*, ♀: 20 *a*, vulva from behind; 20 *b*, ditto, profile view.

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Figures 19 and 20 are taken from British specimens.

1,1 a-d ♀ WIXIA GIBBIFERA.
2,2 a,b ♂ " CLIVOSA.
3,3 a-d ♀ " "
4,4 a-d ♀ " GLOBOSA.
5,5 a-c ♀ " RUFA.
6,6 a-c ♀ " SUBRUFA.
7,7 a ♀ " TURRIGERA.

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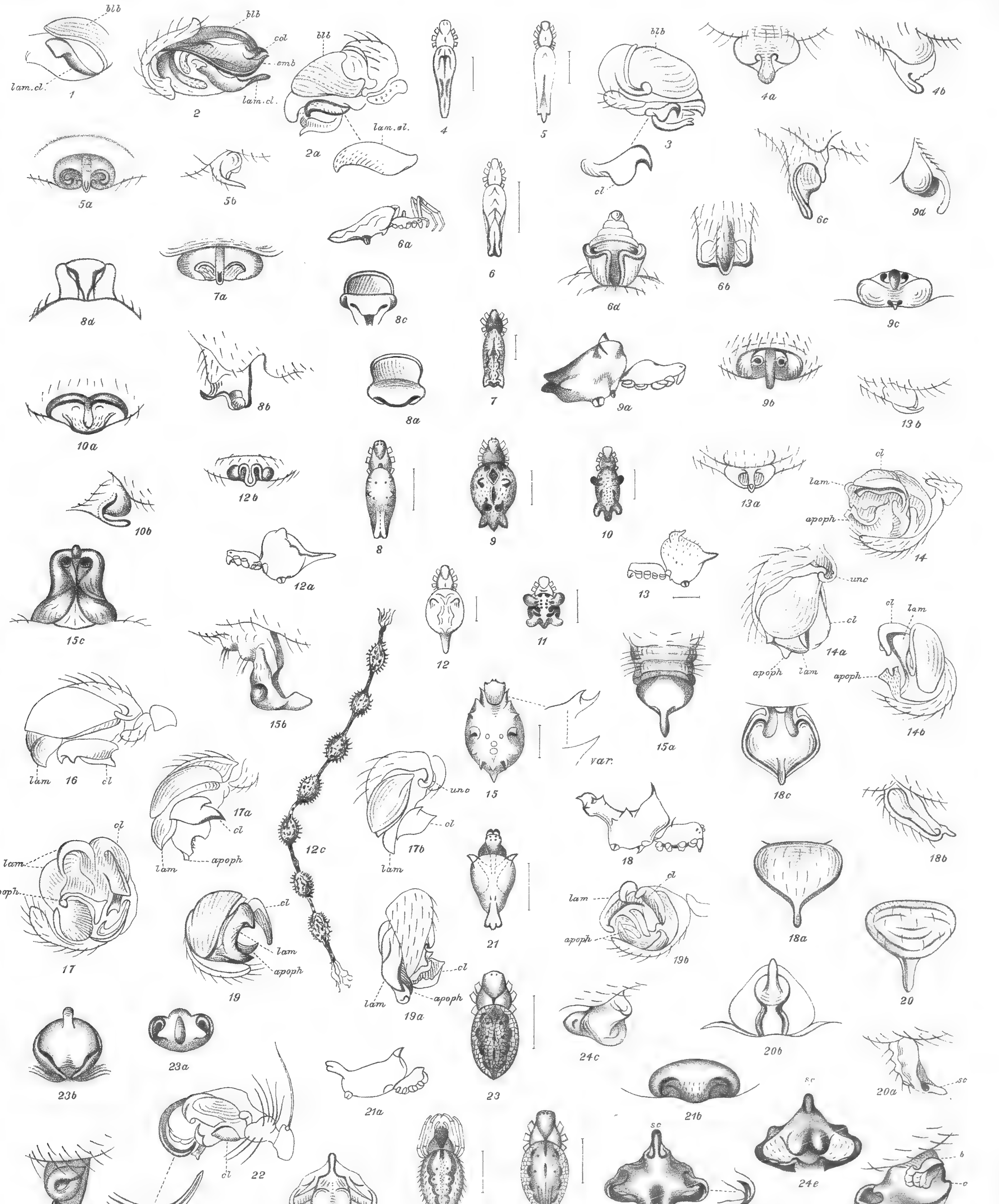
8,8 a ♂ WIXIA SICULA.
9,9 a,b ♂ PARAWIXIA DESTRICTA.
10,10 a-c ♀ " "
11,11 a,b ♂ " ARMATA.
12,12 a ♂ " HYPOCRITA.
13,13 a ♂ " HAMATA.

14,14 a-e ♀ PARAWIXIA GUATEMALENSIS.
15,15 a-c ♀ " HOXÆA.
16,16 a-c ♀ " 13-NOTATA.
17,17 a,b ♀ " HONESTA.
18,18 a-c ♀ " RIGIDA.
19,19 a,b ♂ CYCLOSA CONICA.
20 20 a,b ♀ " "

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# PLATE XLVII.

Fig. 1. *Cyclosa tuberculifera*, ♂, genital bulb, showing the clavis.
2. *Cyclosa culta*, ♂, genital bulb; 2 *a*, ditto, showing clavis.
3. *Cyclosa lacerta*, ♂, genital bulb, showing clavis.
4. *Cyclosa caroli*, ♀: 4 *a*, vulva from above; 4 *b*, ditto, profile view.
5. *Cyclosa conigera*, ♀: 5 *a*, vulva from above; 5 *b*, ditto, profile view.
6. *Cyclosa furcata*, ♀, dorsal view; 6 *a*, ditto, profile view; 6 *b*, vulva from above; 6 *c*, ditto, profile view; 6 *d*, ditto from behind.
7. *Cyclosa trifida*, ♀: 7 *a*, vulva from above.
8. *Cyclosa bifurca*, ♀: 8 *a*, vulva from above; 8 *b*, ditto, profile view; 8 *c*, ditto more from behind; 8 *d*, ditto from behind.
9. *Cyclosa walckenaeri*, ♀, dorsal view; 9 *a*, ditto, profile view; 9 *b*, vulva from above; 9 *c*, ditto from behind; 9 *d*, ditto, profile view.
10. *Cyclosa diversa*, ♀: 10 *a*, vulva from above; 10 *b*, ditto, profile view.
11. *Cyclosa nodosa*, ♀, dorsal view of immature example.
12. *Cyclosa index*, ♀, dorsal view; 12 *a*, ditto, profile view; 12 *b*, vulva, profile view; 12 *c*, string of egg-cocoons.
13. *Cyclosa clara*, ♀, profile view; 13 *a*, vulva from above; 13 *b*, ditto, profile view.
14. *Wagneriana tauricornis*, ♂, genital bulb; 14 *a*, ditto, another view; 14 *b*, ditto, another view.
15. *Wagneriana tauricornis*, ♀: 15 *a*, vulva from above; 15 *b*, ditto, profile view; 15 *c*, ditto from behind.
16. *Wagneriana carinata*, ♂, genital bulb, showing clavis.
17. *Wagneriana* 11-*tuberculata*, ♂, genital bulb; 17 *a*, ditto, another view; 17 *b*, ditto, another view.
18. *Wagneriana* 11-*tuberculata*, ♀: 18 *a*, vulva from above; 18 *b*, ditto, profile view; 18 *c*, ditto from behind.
19. *Wagneriana spicata*, ♂, genital bulb; 19 *a*, ditto, another view; 19 *b*, ditto, another view.
20. *Wagneriana spicata*, ♀, vulva from above; 20 *a*, ditto, profile view; 20 *b*, ditto from behind.
21. *Salassina crassicauda*, ♀, dorsal view; 21 *a*, ditto, profile view; 21 *b*, vulva from above.
22. *Metazygia wittfeldæ*, ♂, genital bulb, showing embolus.
23. *Metazygia wittfeldæ*, ♀: 23 *a*, vulva from above; 23 *b*, ditto from behind; 23 *c*, ditto, profile view.
24. *Metazygia gregalis*, ♀: 24 *a*, ditto, variety; 24 *b*, vulva from behind; 24 *c*, ditto, profile view; 24 *d*, vulva of variety; 24 *e*, ditto from behind; 24 *f*, ditto, profile view.




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 ♂ | CYCLOSA | TUBERCULIFERA. | 9, 9 a-d ♀ | CYCLOSA | WALCKENAERI. | 17,17 a,b ♂ | WAGNERIANA | 11-TUBERCULATA. |
| 2 2 a ♂ | ” | CULTA. | 10, 10 a,b ♀ | ” | DIVERSA. | 18,18 a-c ♀ | ” | ” |
| 3 ♂ | ” | LACERTA. | 11 ♀ | ” | NODOSA. | 19,19 a,b ♂ | ” | SPICATA. |
| 4,4 a,b ♀ | ” | CAROLI. | 12, 12 a-c ♀ | ” | INDEX. | 20,20 a,b ♀ | ” | ” |
| 5,5 a,b ♀ | ” | CONIGERA. | 13, 13 a,b ♀ | ” | CLARA. | 21,21 a,b ♀ | SALASSINA | CRASSICAUDA. |
| 6,6 a-d ♀ | ” | FURCATA. | 14, 14 a,b ♂ | WAGNERIANA | TAURICORNIS. | 22 ♂ | METAZYGIA | WITTFELDÆ. |
| 7,7 a ♀ | ” | TRIFIDA. | 15, 15 a-c ♀ | ” | ” | 23,23 a-c ♀ | ” | ” |
| 8,8 a-d ♀ | ” | BIFURCA. | 16 ♂ | ” | CARINATA. | 24,24 a-f ♀ | ” | GREGALIS. |

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## PLATE XLVIII.

Fig. 1. *Acacesia foliata*, ♂, tibia ii.; 1 *a*, ditto, variety; 1 *b*, coxa and trochanter iv.; 1 *c*, genital bulb.

2. *Acacesia foliata*, ♀: 2 *a*, ditto, variety; 2 *b*, vulva from above; 2 *c*, ditto, variety; 2 *d*, ditto, in profile; 2 *e*, ditto, variety, in profile.

3. *Eustala fuscovittata*, ♂, genital bulb; 3 *a*, ditto, another view.

4. *Eustala fuscovittata*, ♀: 4 *a*, ditto, in profile; 4 *b*, vulva, in profile; 4 *c*, ditto from behind; 4 *d*, ditto, variety.

5. *Eustala illicita*, ♂, genital bulb.

6. *Eustala illicita*, ♀: 6 *a*, ditto, in profile; 6 *b*, vulva from behind; 6 *c*, ditto, another view; 6 *d*, ditto, in profile; 6 *e*, string of egg-cocoons.

7. *Eustala anastera*, ♂, genital bulb; 7 *a*, ditto, another view; 7 *b*, ditto, showing conductor enlarged.

8. *Eustala anastera*, ♀: 8 *a*, vulva from behind; 8 *b*, ditto, in profile.

9. *Eustala bifida*, ♂, genital bulb; 9 *a*, ditto, another view; 9 *b*, ditto, showing embolus enlarged; 9 *c*, uncus, another view.

10. *Eustala bifida*, ♀: 10 *a*, ditto, in profile; 10 *b*, vulva from behind; 10 *c*, ditto, in profile.

11. *Eustala scutigera*, ♂, portion of genital bulb, showing embolus, &c., enlarged.

12. *Eustala scutigera*, ♀: 12 *a*, ditto, variety; 12 *b*, ditto, variety; 12 *c*, ditto, variety; 12 *d*, vulva from behind; 12 *e*, ditto, in profile; 12 *f*, ditto, variety; 12 *g*, ditto, variety.

13. *Eustala guttata*, ♂, genital bulb; 13 *a*, ditto, another view; 13 *b*, ditto, embolus enlarged; 13 *c*, ditto, from another example; 13 *d*, ditto, embolus, &c., enlarged.

14. *Eustala guttata*, ♀, vulva from behind; 14 *a*, ditto, in profile.

15. *Eustala latebricola*, ♀, vulva from behind; 15 *a*, ditto, in profile.

16. *Eustala vegeta*, ♂, genital bulb, showing embolus, conductor, uncus, and clavis.

17. *Eustala vegeta*, ♀: 17 *a*, vulva from behind; 17 *b*, ditto, in profile.

18. *Eustala fragilis*, ♀, vulva from behind; 18 *a*, ditto, in profile.

19. *Eustala clavispina*, ♀, vulva from behind; 19 *a*, ditto, in profile.

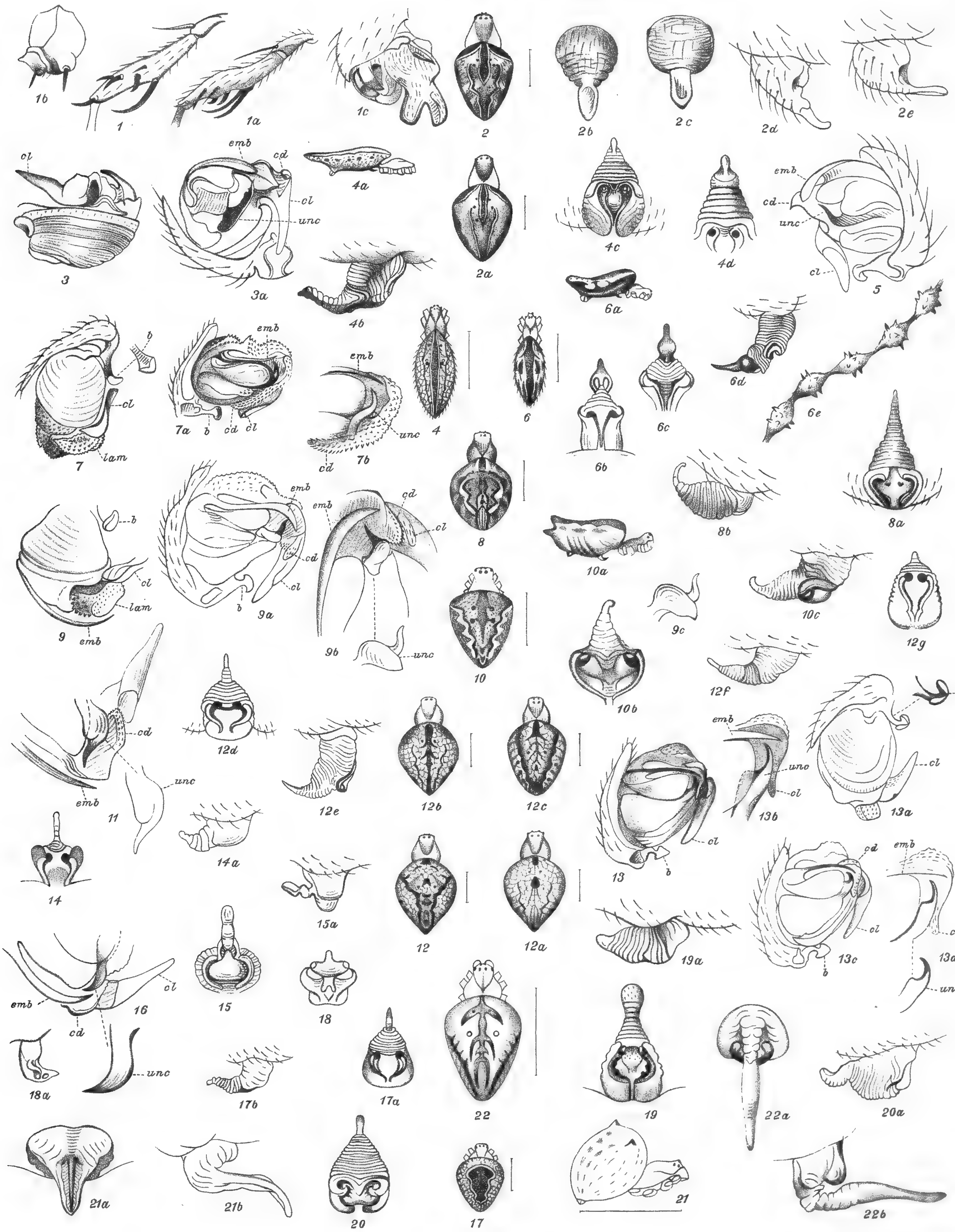
20. *Eustala semifoliata*, ♀, vulva from behind; 20 *a*, ditto, in profile.

21. *Aranea sinistra*, ♀, in profile; 21 *a*, vulva from above; 21 *b*, ditto, in profile.

22. *Aranea nephiloides*, ♀: 22 *a*, vulva from above; 22 *b*, ditto, in profile.

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The small letters, unless otherwise stated, refer to similar portions of structure:
*b.* = tarsal hook; *cd.* = conductor; *cl.* = clavis; *cm.* = cymbium; *emb.* = embolus; *lam.* = lamina; *unc.* = uncus.




1,1 a-c ♂ ACACESIA FOLIATA.
2,2 a-e ♀ " "
3,3 a ♂ EUSTALA FUSCOVITTATA.
4,4 a-d ♀ " "
5 ♂ " ILLICITA.
6,6 a-e ♀ " "
7,7 a,b ♂ " ANASTERA.

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8, 8 a,b ♀ EUSTALA ANASTERA.
9, 9 a-c ♂ " BIFIDA.
10, 10 a-c ♀ " "
11 ♂ " SCUTIGERA.
12, 12 a-g ♀ " "
13, 13 a-d ♂ " GUTTATA.
14, 14 a ♀ " "
15, 15 a ♀ " LATEBRICOLA.

16 ♂ EUSTALA VEGETA.
17, 17 a,b ♀ " "
18, 18 a ♀ " FRAGILIS.
19, 19 a ♀ " CLAVISPINA.
20, 20 a ♀ " SEMIFOLIATA.
21, 21 a,b ♀ ARANEA SINISTRA.
22, 22 a,b ♀ " NEPHILOIDES.

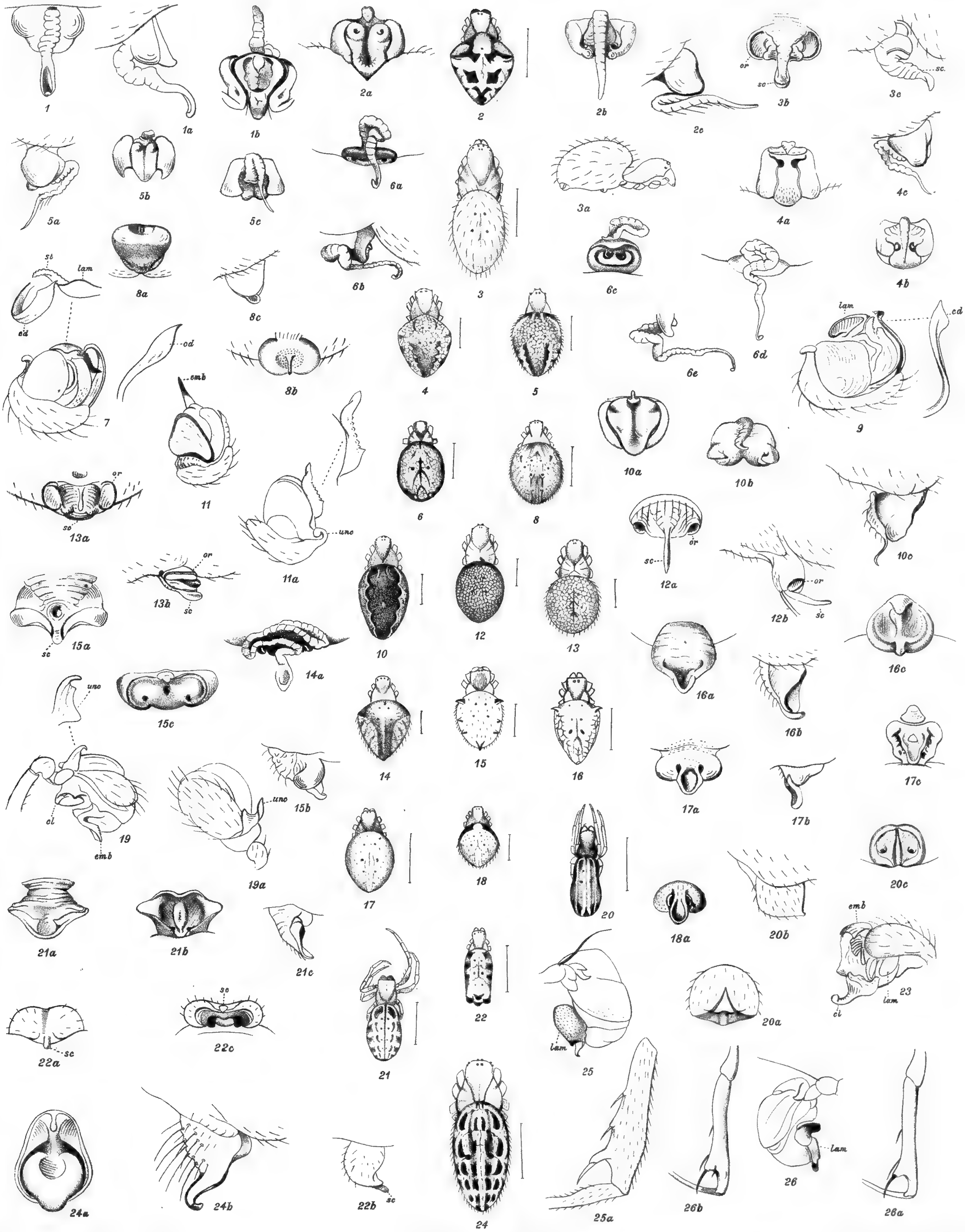
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# PLATE XLIX.

Fig. 1. *Aranea smithi*, ♀, vulva; 1 *a*, ditto in profile; 1 *b*, ditto from behind.
2. *Aranea sargi*, ♀: 2 *a*, vulva from behind; 2 *b*, ditto from above; 2 *c*, ditto in profile.
3. *Aranea concolorata*, ♀: 3 *a*, ditto in profile; 3 *b*, vulva from above; 3 *c*, ditto in profile.
4. *Aranea gravabilis*, ♀: 4 *a*, vulva from behind; 4 *b*, ditto more from above; 4 *c*, ditto in profile.
5. *Aranea aculifera*, ♀: 5 *a*, vulva in profile; 5 *b*, ditto from behind; 5 *c*, ditto from above.
6. *Aranea glabrata*, ♀: 6 *a*, vulva from above; 6 *b*, ditto in profile; 6 *c*, ditto from behind; 6 *d*, ditto from above; 6 *e*, ditto in profile, another example.
7. *Aranea incerta*, ♂, genital bulb.
8. *Aranea incerta*, ♀: 8 *a*, vulva from behind; 8 *b*, ditto from above; 8 *c*, ditto in profile.
9. *Aranea dilatata*, ♂, genital bulb.
10. *Aranea helvola*, ♀: 10 *a*, vulva from behind; 10 *b*, ditto from above; 10 *c*, ditto in profile.
11. *Aranea nigrocincta*, ♂, genital bulb; 11 *a*, ditto, another view.
12. *Aranea nigrocincta*, ♀: 12 *a*, vulva from above; 12 *b*, ditto in profile.
13. *Aranea pallidula*, ♀: 13 *a*, vulva from above; 13 *b*, ditto in profile.
14. *Aranea anguinifera*, ♀: 14 *a*, vulva from above.
15. *Aranea 7-mammata*, ♀: 15 *a*, vulva from above; 15 *b*, ditto in profile; 15 *c*, ditto from behind.
16. *Aranea spinigera*, ♀: 16 *a*, vulva from above; 16 *b*, ditto in profile; 16 *c*, ditto from behind.
17. *Aranea rufipes*, ♀: 17 *a*, vulva from above; 17 *b*, ditto in profile; 17 *c*, ditto from behind.
18. *Aranea detrimentosa*, ♀: 18 *a*, vulva from above.
19. *Aranea cylindrica*, ♂, genital bulb; 19 *a*, ditto, another view.
20. *Aranea cylindrica*, ♀: 20 *a*, vulva from above; 20 *b*, ditto in profile; 20 *c*, ditto from behind.
21. *Aranea laticeps*, ♀: 21 *a*, vulva from above; 21 *b*, ditto from behind; 21 *c*, ditto in profile.
22. *Aranea nigropustulata*, ♀: 22 *a*, vulva from above; 22 *b*, ditto in profile; 22 *c*, ditto from behind.
23. *Aranea veniliæ*, ♂, genital bulb.
24. *Aranea veniliæ*, ♀: 24 *a*, vulva from behind; 24 *b*, ditto in profile.
25. *Edricus spinigerus*, ♂, genital bulb; 25 *a*, tibia ii. in profile.
26. *Edricus productus*, ♂, genital bulb; 26 *a*, tibia ii. in profile; 26 *b*, ditto, another example.

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The small letters, unless otherwise stated, refer to similar portions of structure:
*cd.*=conductor; *cl.*=clavis; *cm.*=cymbium; *emb.*=embolus; *lam.*=lamina; *or.*=genital orifice; *sc.*=scapus; *st.*=stylum; *unc.*=uncus.




| | | |
|---|---|---|
| 1,1a,b ♀ | ARANEA | SMITHI. |
| 2,2a-c ♀ | ” | SARGI. |
| 3,3a-c ♀ | ” | CONCOLORATA. |
| 4,4a-c ♀ | ” | GRAVABILIS. |
| 5,5a-c ♀ | ” | ACULIFERA. |
| 6,6a-c ♀ | ” | GLABRATA. |
| 7 ♂ | ” | INCERTA. |
| 8,8a-c ♀ | ” | ” |
| 9 ♂ | ” | DILATATA. |
| 10,10a-c ♀ | ARANEA | HELVOLA. |
| 11,11a ♂ | ” | NIGROCINCTA |
| 12,12a,b ♀ | ” | ” |
| 13,13a,b ♀ | ” | PALLIDULA. |
| 14,14a ♀ | ” | ANGUINIFERA |
| 15,15a-c ♀ | ” | 7-MAMMATA. |
| 16,16a-c ♀ | ” | SPINIGERA. |
| 17,17a-c ♀ | ” | RUFIPES. |
| 18,18a ♀ | ARANEA | DETRIMENTOSA. |
| 19,19a ♂ | ” | CYLINDRICA. |
| 20,20a-c ♀ | ” | ” |
| 21,21a-c ♀ | ” | LATICEPS. |
| 22,22a-c ♀ | ” | NIGROPUSTULATA. |
| 23 ♂ | ” | VENILIÆ. |
| 24,24a,b ♀ | ” | ” |
| 25,25a ♂ | EDRICUS | SPINIGERUS. |
| 26,26a,b ♂ | ” | PRODUCTUS. |

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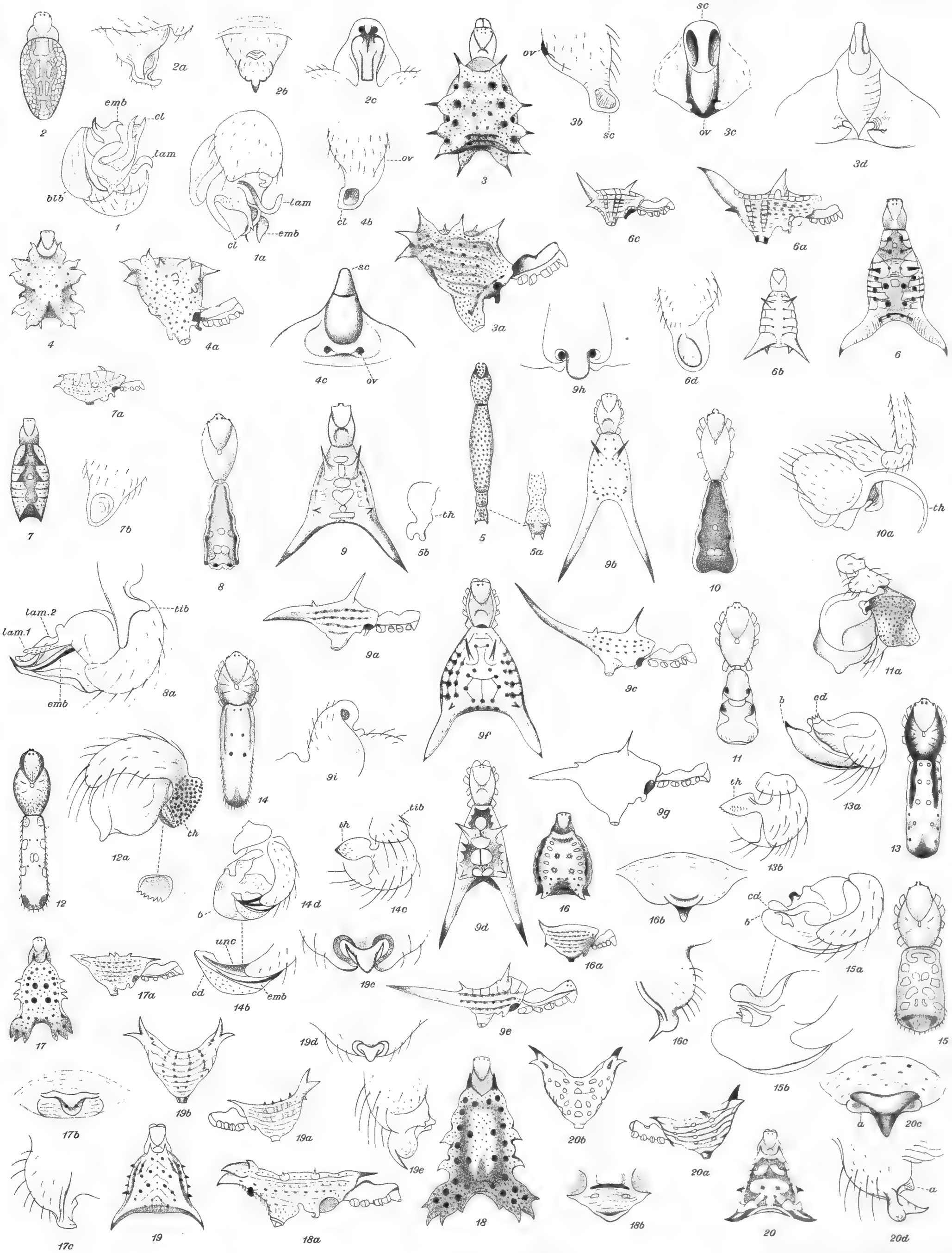
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PLATE L.

Fig. 1. *Aranea championi*, ♂, genital bulb; 1 *a*, ditto, another view.
2. *Aranea championi*, ♀: 2 *a*, vulva, in profile; 2 *b*, ditto from above; 2 *c*, ditto from behind.
3. *Micrathena gracilis*, ♀: 3 *a*, ditto, in profile; 3 *b*, vulva, in profile; 3 *c*, ditto from above; 3 *d*, ditto from behind.
4. *Micrathena mammillata*, ♀: 4 *a*, ditto, in profile; 4 *b*, vulva, in profile; 4 *c*, vulva from behind.
5. *Micrathena longicauda*, ♂: 5 *a*, apex of abdomen from behind; 5 *b*, tarsal hook of genital bulb.
6. *Micrathena striata*, ♀: 6 *a*, ditto, in profile; 6 *b*, ditto, dwarf form; 6 *c*, ditto, in profile; 6 *d*, vulva, in profile.
7. *Micrathena spinulata*, ♀: 7 *a*, ditto, in profile; 7 *b*, vulva, in profile.
8. *Micrathena brevipes*, ♂: 8 *a*, genital bulb, showing embolus, &c.
9. *Micrathena obtusospina*, ♀: 9 *a*, ditto, in profile; 9 *b*, ditto, variety; 9 *c*, ditto, in profile; 9 *d*, ditto, another variety; 9 *e*, ditto, in profile; 9 *f*, ditto, another variety; 9 *g*, ditto, in profile; 9 *h*, vulva of first form; 9 *i*, ditto, in profile.
10. *Micrathena cornigera*, ♂: 10 *a*, genital bulb, showing tarsal hook.
11. *Micrathena vitiosa*, ♂: 11 *a*, genital bulb, showing tarsal hook.
12. *Micrathena granulata*, ♂: 12 *a*, genital bulb, showing tarsal hook.
13. *Micrathena parallela*, ♂: 13 *a*, genital bulb; 13 *b*, ditto, showing tarsal hook.
14. *Micrathena uncata*, ♂: 14 *a*, genital bulb, showing embolus &c.; 14 *b*, ditto, embolus &c. enlarged; 14 *c*, ditto, showing tarsal hook.
15. *Micrathena patruelis*, ♂: 15 *a*, genital bulb; 15 *b*, ditto, showing conductor &c. enlarged.
16. *Micrathena patruelis*, ♀: 16 *a*, ditto, in profile; 16 *b*, vulva from above; 16 *c*, ditto, in profile.
17. *Micrathena triserrata*, ♀: 17 *a*, ditto, in profile; 17 *b*, vulva from above; 17 *c*, ditto, in profile.
18. *Micrathena quadriserrata*, ♀: 18 *a*, ditto, in profile; 18 *b*, vulva from above.
19. *Micrathena serrata*, ♀: 19 *a*, ditto, in profile; 19 *b*, ditto, abdomen from behind; 19 *c*, vulva from above; 19 *d*, ditto, another view; 19 *e*, ditto, in profile.
20. *Micrathena inæqualis*, ♀: 20 *a*, ditto, in profile; 20 *b*, ditto, abdomen from behind; 20 *c*, vulva from above; 20 *d*, ditto, in profile.

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The letters, unless otherwise stated, indicate similar portions of structure:
*blb.*=bulb-portion of genital bulb; *cd.*=conductor; *cl.*=clavis; *emb.*=embolus; *lam.*=lamella; *ov.*=oviducts; *sc.*=scapus; *th.*=tarsal hook; *tib.*=tibia of palpus; *unc.*=uncus.




1,1a ♂ ARANEA CHAMPIONI.
2,2a-c ♀ " "
3,3a-d ♀ MICRATHENA GRACILIS.
4,4a-c ♀ " MAMMILLATA.
5,5a,b ♂ " LONGICAUDA.
6,6a-d ♀ " STRIATA.
7,7a,b ♀ " SPINULATA.

8,8a ♂ MICRATHENA BREVIPES.
9,9a-i ♀ " OBTUSOSPINA.
10,10a ♂ " CORNIGERA.
11,11a ♂ " VITIOSA.
12,12a ♂ " GRANULATA.
13,13a,b ♂ " PARALLELA.

14,14a-c ♂ MICRATHENA UNCATA.
15,15a,b ♂ " PATRUELIS.
16,16a-c ♀ " "
17,17a-c ♀ " TRISERRATA.
18,18a,b ♀ " QUADRISERRATA.
19,19a,b ♀ " SERRATA.
20,20a-d ♀ " INÆQUALIS.

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PLATE LI.

Fig. 1. *Aranea mormon*, ♀: 1 *a*, vulva from above; 1 *b*, ditto in profile.
2. *Aranea graphica*, ♂, genital bulb; 2 *a*, ditto in profile.
3. *Aranea flava*, ♂, genital bulb.
4. *Aranea cyrtophoroides*, ♀: 4 *a*, ditto in profile; 4 *b*, vulva from above; 4 *c*, ditto from behind; 4 *d*, ditto in profile.
5. *Aranea fasciolata*, ♀; leg i.; 5 *a*, ditto, protarsus and tarsus enlarged.
6. *Scoloderus americanus*, ♀: 6 *a*, ditto in profile; 6 *b*, vulva from above.
7. *Scoloderus nigriceps*, ♀, vulva.
8. *Scoloderus gibber*, ♀: 8 *a*, vulva.
9. *Kaira gibberosa*, ♀, vulva; 9 *a*, ditto in profile.
10. *Kaira altiventer*, ♀, vulva; 10 *a*, ditto in profile.
11. *Kaira dromedaria*, ♀, vulva; 11 *a*, ditto in profile.
12. *Hentzia trivittata*, ♂, genital bulb; 12 *a*, ditto from the outer side.
13. *Hentzia trivittata*, ♀, vulva; 13 *a*, ditto in profile.
14. *Gasteracantha cancriformis*, ♀.
15. *Gasteracantha kochi*, ♀: 15 *a*, ditto, variety; 15 *b*, vulva.
16. *Micrathena gracilis*, ♂: 16 *a*, genital bulb and tarsal hook.
17. *Micrathena subspinosa*, ♀: 17 *a*, ditto in profile; 17 *b*, vulva; 17 *c*, ditto in profile.
18. *Micrathena 12-spinosa*, ♀: 18 *a*, ditto in profile; 18 *b*, vulva in profile; 18 *c*, ditto from above.
19. *Micrathena schreibersi*, ♀: 19 *a*, ditto in profile.
20. *Micrathena sagittata*, ♂: 20 *a*, genital bulb and tarsal hook; 20 *b*, ditto, another view; 20 *c*, ditto, another view; 20 *d*, patella and tibia of palpus.
21. *Micrathena sagittata*, ♀: 21 *a*, ditto from behind; 21 *b*, ditto in profile; 21 *c*, vulva from behind; 21 *d*, ditto in profile.
22. *Micrathena gladiola*, ♀: 22 *a*, ditto in profile; 22 *b*, vulva in profile; 22 *c*, ditto from above.
23. *Micrathena bimucronata*, ♀: 23 *a*, ditto from behind; 23 *b*, ditto in profile; 23 *c*, vulva in profile; 23 *d*, ditto from above.
24. *Micrathena catenulata*, ♀: 24 *a*, ditto in profile; 24 *b*, vulva from above; 24 *c*, ditto in profile.
25. *Micrathena furcula*, ♀: 25 *a*, ditto in profile; 25 *b*, vulva from above; 25 *c*, ditto in profile.
26. *Tricantha tricornis*, ♀: 26 *a*, vulva.
27. *Hypognatha nasuta*, ♂, front of carapace; 27 *a*, genital bulb.
28. *Hypognatha nasuta*, ♀: 28 *a*, vulva.

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The small letters, unless otherwise stated, refer to similar portions of structure:
*cd.*=conductor; *cl.*=clavis; *cm.*=cymbium; *emb.*=embolus; *lam.*=lamina; *or.*=genital orifice; *sc.*=scapus; *st.*=stylum; *unc.*=uncus.

1,1a,b ♀ ARANEA MORMON.
2,2a ♂ " GRAPHICA.
3 ♂ " FLAVA.
4,4a-d ♀ " CYRTOPHOROIDES.
5,5a ♂ " FASCIOLATA.
6,6a,b ♀ SCOLODERUS AMERICANUS.
7 ♀ " NIGRICEPS.
8,8a ♀ " GIBBER.
9,9a ♀ KAIRA GIBBEROSA.
10,10a ♀ KAIRA ALTIVENTER.
11,11a ♀ " DROMEDARIA.
12,12a ♂ HENTZIA TRIVITTATA.
13,13a ♀ " "
14 ♀ GASTERACANTHA CANCRIFORMIS.
15,15a,b ♀ " KOCHI.
16,16a ♂ MICRATHENA GRACILIS.
17,17a-c ♀ " SUBSPINOSA.
18,18a-c ♀ " 12-SPINOSA.
19,19a ♀ " SCHREIBERSI.
20,20a-d ♂ MICRATHENA SAGITTATA.
21,21a-d ♀ " "
22,22a-c ♀ " GLADIOLA.
23,23a-d ♀ " BIMUCRONATA.
24,24a-c ♀ " CATENULATA.
25,25a-c ♀ " FURCULA.
26,26a ♀ TRICANTHA TRICORNIS.
27,27a ♂ HYPOGNATHA NASUTA.
28,28a ♀ " "

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## PLATE LII.

Fig. 1. *Paravonones biserratus*, ♂, dorsal aspect; 1 *a*, femur iv. from the outer side; 1 *b*, protarsus iv.
2. *Paravonones quadratus*, ♂, dorsal aspect; 2 *a*, tarsus i.; 2 *b*, protarsus iv.
3. *Paravonones claviger*, ♂, femur iv. from the outer side; 3 *a*, ditto from beneath.
4. *Paravonones compressus*, ♂, dorsal aspect; 4 *a*, femur iv. from beneath; 4 *b*, ditto from the outer side.
5. *Paravonones incrassatus*, ♂, femur iv. from the outer side; 5 *a*, ditto from above.
6. *Metavonones hispidus*, ♂, dorsal aspect; 6 *a*, femur iv. from the outer side; 6 *b*, tarsus i.
7. *Erginoides tarsalis*, ♂, tarsus iv. in profile; 7 *a*, tarsus i.
8. *Metacynorta gracilipes*, ♂, dorsal aspect.
9. *Cynorta albipunctata*, ♂, dorsal aspect; 9 *a*, tarsus i.; 9 *b*, tibia and protarsus iv.
10. *Cynorta bipunctata*, ♂, dorsal aspect; 10 *a*, leg iv.
11. *Cynorta biguttata*, ♂, dorsal aspect; 11 *a*, leg iv.
12. *Cynorta bituberculata*, ♂, dorsal aspect; 12 *a*, leg iv.
13. *Cynorta longipes*, ♂, dorsal aspect; 13 *a*, leg iv.
14. *Cynorta longispina*, ♂, dorsal aspect; 14 *a*, leg. iv.
15. *Cynorta dentipes*, ♂, dorsal aspect; 15 *a*, leg iv.; 15 *b*, apex of femur iv., enlarged.
16. *Cynorta annulipes*, ♂, dorsal aspect; 16 *a*, leg iv. from the outer side; 16 *b*, apex of femur iv., enlarged.
17. *Cynorta conigera*, ♀, dorsal aspect.
18. *Erginus serratifer*, ♂, femur iv.
19. *Erginus clavo-tibialis*, ♂, dorsal aspect; 19 *a*, leg iv. from the outer side; 19 *b*, ditto from the inner side.
20. *Erginus serrato-tibialis*, ♂, full figure; 20 *a*, tibia iv., enlarged.
21. *Erginus cylindro-tibialis*, ♂, right femur iv. from above; 21 *a*, left femur iv. from below; 21 *b*, sectional view of one of the spines.
22. *Erginus arcuatus*, ♂, dorsal aspect; 22 *a*, femur iv. from the inner side; 22 *b*, ditto from the outer side; 22 *c*, ditto from beneath.
23. *Erginus sinuosus*, ♂, dorsal aspect; 23 *a*, femur iv. from beneath.

1,1a,b ♂ PARAVONONES BISERRATUS.
2,2a,b ♂ " QUADRATUS.
3,3a ♂ " CLAVIGER.
4,4a,b ♂ " COMPRESSUS.
5,5a ♂ " INCRASSATUS.
6,6a,b ♂ METAVONONES HISPIDUS.
7,7a ♂ ERGINOIDES TARSALIS.
8 ♂ METACYNORTA GRACILIPES.

9, 9a,b ♂ CYNORTA ALBIPUNCTATA.
10,10a ♂ " BIPUNCTATA.
11,11a ♂ " BIGUTTATA.
12,12a ♂ " BITUBERCULATA.
13,13a ♂ " LONGIPES.
14,14a ♂ " LONGISPINA.
15,15a,b ♂ " DENTIPES.

16,16a,b ♂ CYNORTA ANNULIPES.
17 ♀ " CONIGERA.
18 ♂ ERGINUS SERRATIFER.
19.19a,b ♂ " CLAVOTIBIALIS.
20.20a ♂ " SERRATOTIBIALIS.
21.21a,b ♂ " CYLINDROTIBIALIS.
22.22a-c ♂ " ARCUATUS.
23.23a ♂ " SINUOSUS.

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## PLATE LIII.

Fig. 1. *Erginus simplicipes*, ♂, showing yellow pattern; 1 *a*, femur iv., outer side; 1 *b*, ditto from beneath; 1 *c*, ditto, another view from the outer side.

2. *Erginus subserialis*, ♂: 2 *a*, femur iv. from beneath; 2 *b*, ditto, another view.

3. *Erginus cristatus*, ♂: 3 *a*, femur iv. from the outer side; 3 *b*, ditto from beneath.

4. *Erginus crassescens*, ♂, femur iv. from the outer side; 4 *a*, ditto, left, from above.

5. *Erginus serratipes*, ♂: 5 *a*, femur iv. from beneath.

6. *Erginus triangularis*, ♂: 6 *a*, femur iv. from the outer side; 6 *b*, ditto slightly from beneath.

7. *Erginus tricristatus*, ♂: 7 *a*, femur iv. from the outer side; 7 *b*, ditto from above; 7 *c*, one of the outer row of spines, enlarged.

8. *Erginus clavipes*, ♂, femur iv. from beneath; 8 *a*, ditto from the outer side.

9. *Erginus erectispinus*, ♂: 9 *a*, femur iv. from above; 9 *b*, ditto from beneath.

10. *Erginus rectus*, ♂: 10 *a*, femur iv. from above.

11. *Erginus pectinigerus*, ♂: 11 *a*, ditto, showing appendages and prosomatic (*pr.*) and opisthosomatic (*op.*) tergal segments; 11 *b*, ditto, showing appendages and sternal segments.

12. *Meterginus basalis*, ♂: 12 *a*, femur iv. from the inner side.

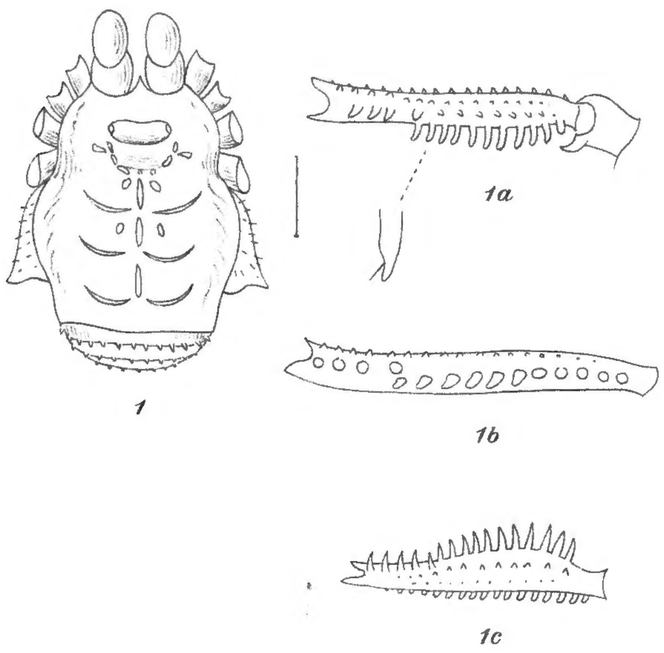
13. *Meterginus tibialis*, ♂, femur iv.; 13 *a*, tibia iv.: *a* indicates the inner side of the segment in each case.

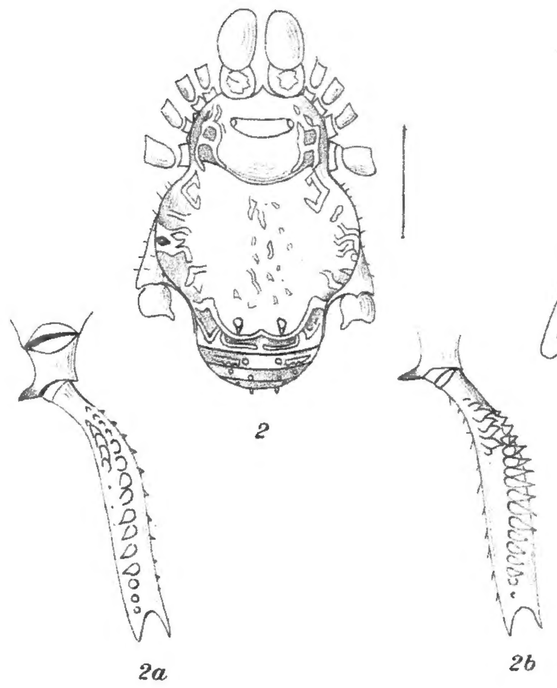
14. *Meterginus dorsalis*, ♂, femur iv. from the outer side, profile view; 14 *a*, ditto from beneath.

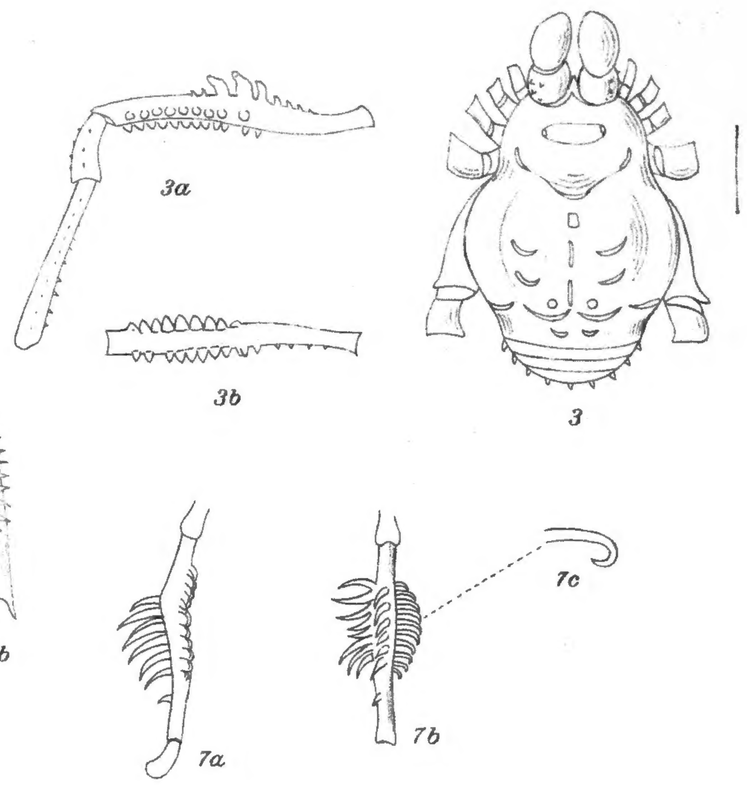
15. *Meterginus apicalis*, ♂, femur iv. from the outer side, profile view; 15 *a*, ditto from beneath.

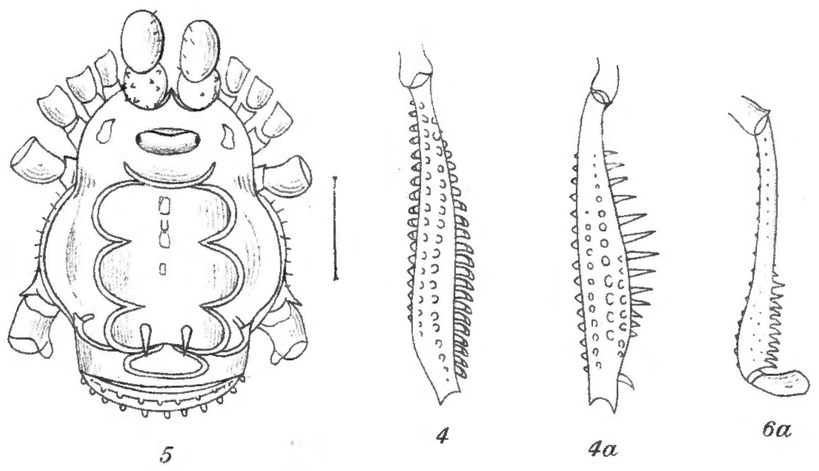
16. *Meterginus forcipatus*, ♂: 16 *a*, coxa and trochanter iv. from beneath; 16 *b*, femur iv. with trochanter from above; 16 *c*, ditto from beneath.

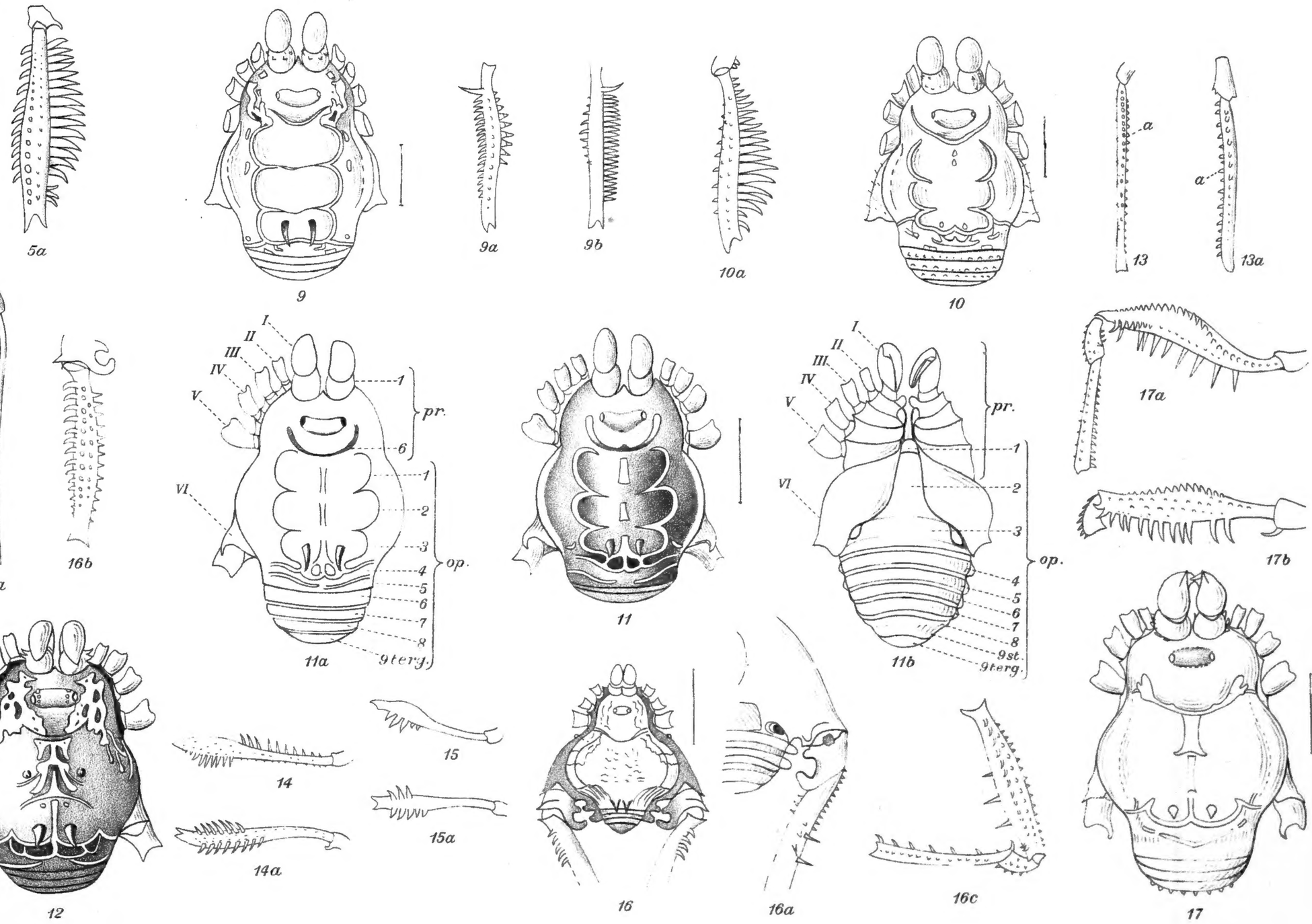
17. *Pœcilæma rastellifera*, ♂: 17 *a*, femur iv. from the outer side; 17 *b*, ditto from above and from the inner side.




1,1a-c ♂ ERGINUS SIMPLICIPES.
2,2a,b ♂ " SUBSERIALIS.
3,3a,b ♂ " CRISTATUS.
4,4a ♂ " CRASSESCENS.
5,5a ♂ " SERRATIPES.
6,6a,b ♂ " TRIANGULARIS.

7,7a-c ♂ ERGINUS TRICRISTATUS.
8,8a ♂ " CLAVIPES.
9,9a,b ♂ " ERECTISPINUS.
10,10a ♂ " RECTUS.
11,11a,b ♂ " PECTINIGERUS.

12,12a ♂ METERGINUS BASALIS.
13,13a ♂ " TIBIALIS.
14,14a ♂ " DORSALIS.
15,15a ♂ " APICALIS.
16,16a-c ♂ " FORCIPATUS.
17,17a,b ♂ PŒCILÆMA RASTELLIFERA.

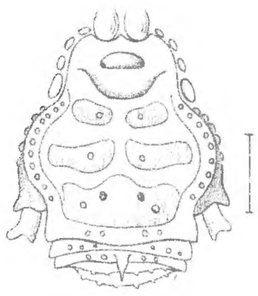
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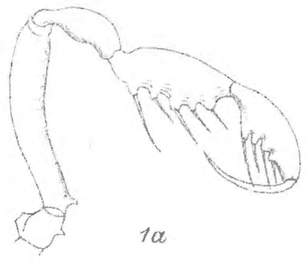
## PLATE LIV.

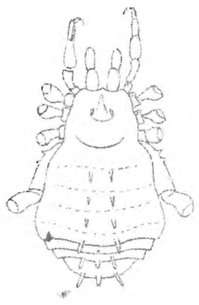
Fig. 1. *Hernandarioides plana*, ♀, dorsal aspect, legs removed; 1 *a*, palpus, from the outer side.
2. *Metapachylus gracilis*, ♂, dorsal aspect, legs removed; 2 *a*, profile view, legs removed; 2 *b*, eye-tubercle in profile; 2 *c*, palpus from the outer side; 2 *d*, terminal segments of abdomen enlarged to show spines.
3. *Paramitraceras granulatus*, ♂, dorsal aspect, legs removed; 3 *a*, profile view, legs removed; 3 *b*, palpus, showing patella and tibia.
4. *Paramitraceras hispidulus*, ♂, dorsal aspect, legs removed; 4 *a*, ditto, profile view; 4 *b*, dorsal spines enlarged; 4 *c*, eye-tubercle, profile view; 4 *d*, palpus from above.
5. *Paramitraceras hispidulus*, ♀, profile view, legs removed; 5 *a*, eye-tubercle, profile view; 5 *b*, palpus from above.
6. *Metaconomma femorale*, ♂, profile view, legs removed.
7. *Palpinus levis*, ♂, dorsal aspect, legs removed; 7 *a*, sternal segments with coxæ of legs; 7 *b*, palpus, profile view; 7 *c*, tarsus of leg iv., profile view; 7 *d*, tarsus of leg i., profile view.
8. *Phalangium armigerum*, ♂, dorsal aspect, legs removed; 8 *a*, tibia and protarsus of leg i.
9. *Phalangium armigerum*, ♀, dorsal aspect, legs removed; 9 *a*, palpus, showing the three basal segments and the two basal spurs.
10. *Phalangium horridum*, ♂, palpus from beneath, showing tibia and tarsus; 10 *a*, tibia and protarsus of leg i. from the outer side.
11. *Phalangium spinigerum*, ♂, palpus from beneath, showing tibia and tarsus; 11 *a*, tibia and protarsus of leg i.
12. *Phalangium spinigerum*, ♀, dorsal aspect, legs removed.
13. *Phalangium acanthipes*, ♂, tibia and protarsus of leg i.
14. *Phalangium acanthipes*, ♀, dorsal aspect, legs removed.
15. *Phalangium maculatipes*, ♀, dorsal aspect, legs removed; 15 *a*, leg i., profile view.
16. *Leiobunum coriaceum*, ♂, dorsal aspect, legs removed; 16 *a*, penis.
17. *Leiobunum coriaceum*, ♀, patella and base of tibia of left palpus.
18. *Leiobunum foveolatum*, ♀, dorsal aspect, legs removed; 18 *a*, patella and base of tibia of right palpus.
19. *Leiobunum dromedarium*, ♂, palpus, profile view, from the outer side.
20. *Leiobunum dromedarium*, ♀, profile view, legs removed.
21. *Leiobunum fulvum*, ♂, penis.
22. *Leiobunum fulvum*, ♀, ovipositor.
23. *Leiobunum fulviventre*, ♀, mandible showing basal spur at *a*.

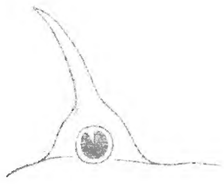
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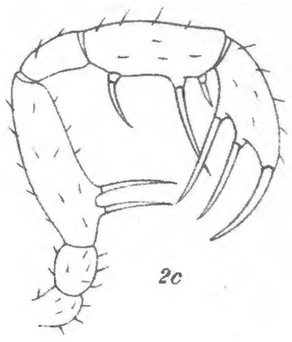
The small letters, unless otherwise stated, refer to similar portions of structure: *ov.*=ovipositor; *plp.*=palpus; *pn.*=penis; *sp.*=spiracle; *tr.*=trochanter.


1

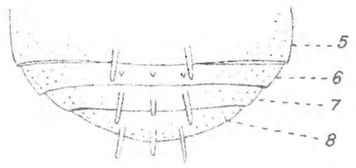

1a

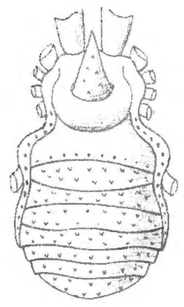

2


2b

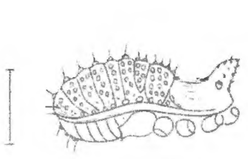

2c


2a

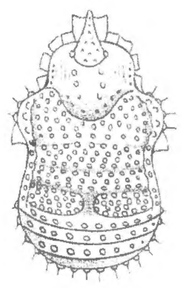

2d


3


3b

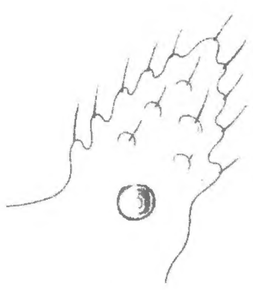

5


4b


4


4c

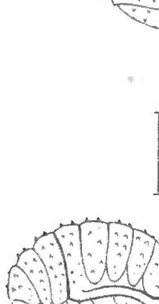

4d


5a

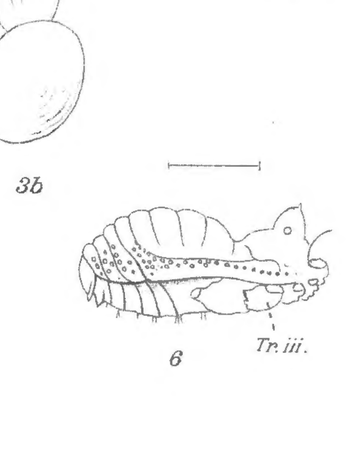

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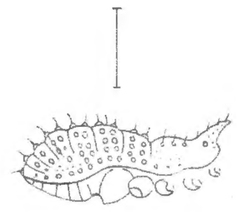

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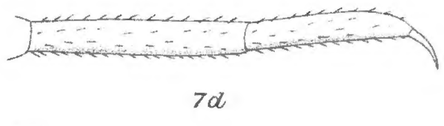
Tr. iii.

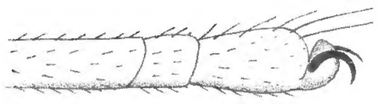

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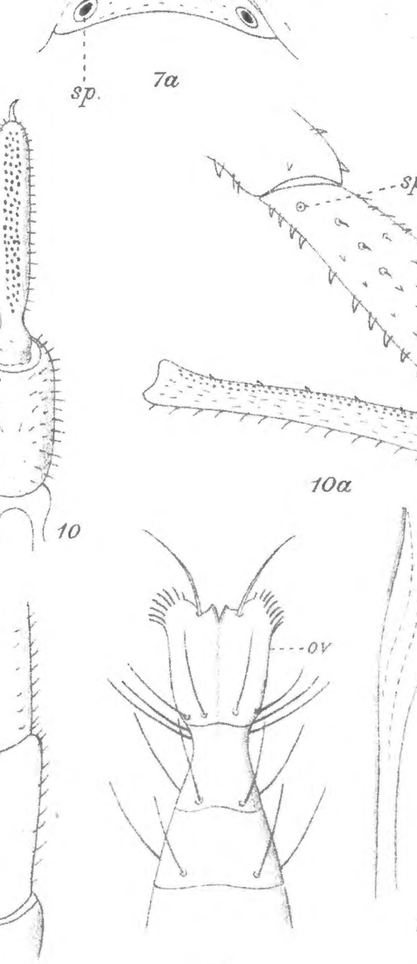

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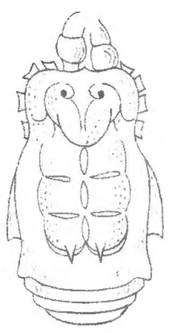

8


4a

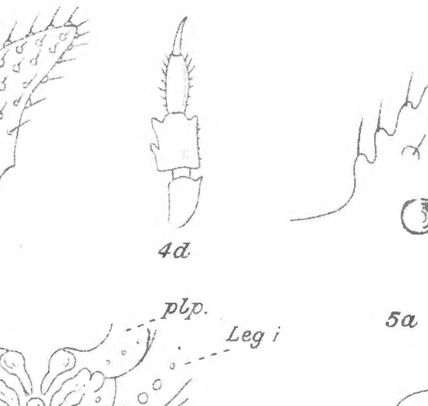

7d


7c


7a

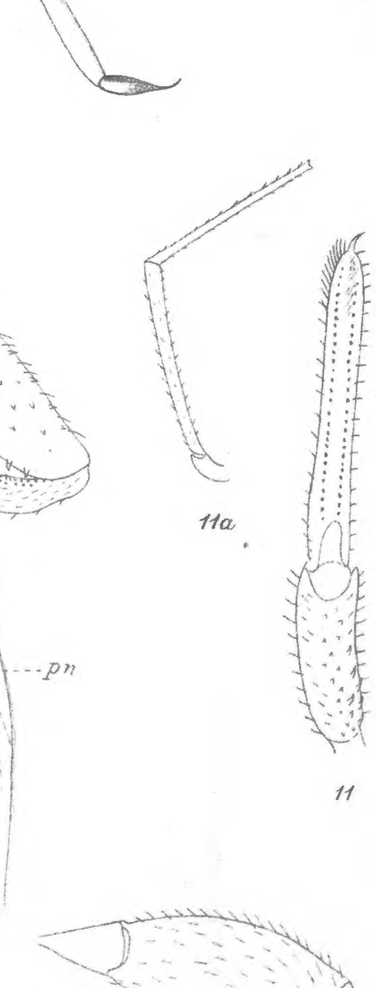

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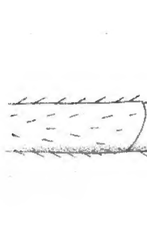

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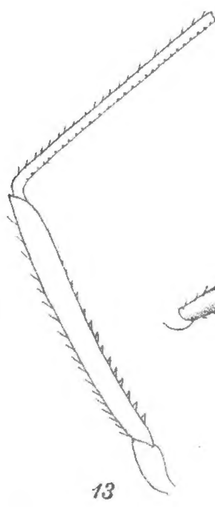

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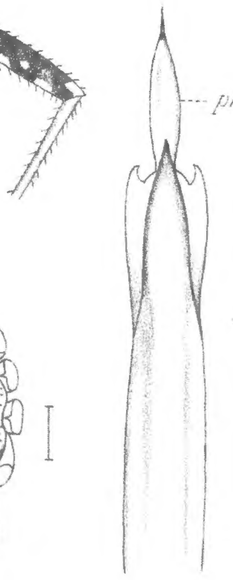

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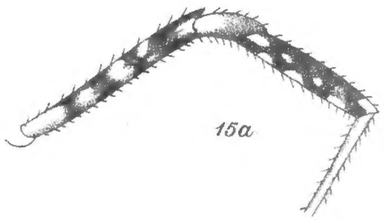

11


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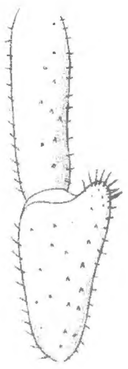

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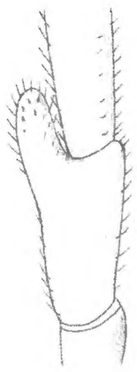

13


8a


15a

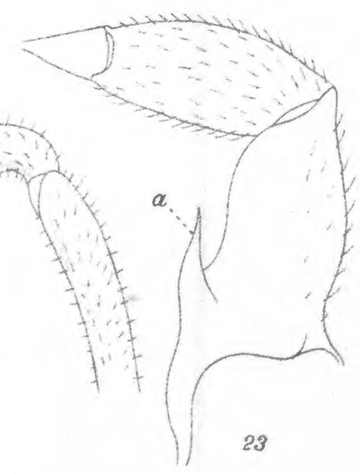

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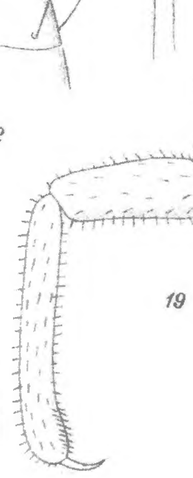

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18a

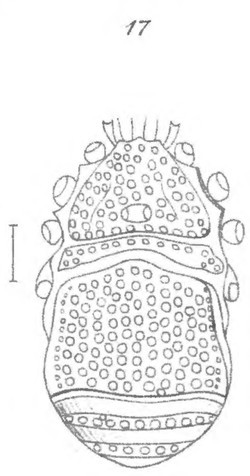

21


ov

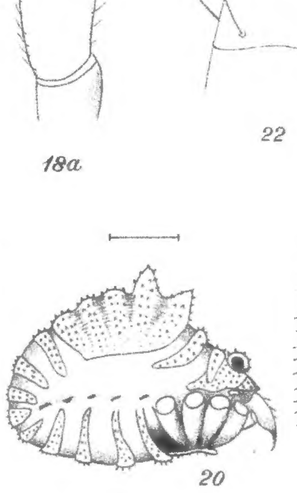

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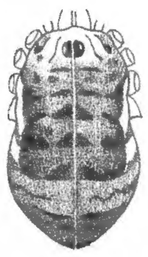

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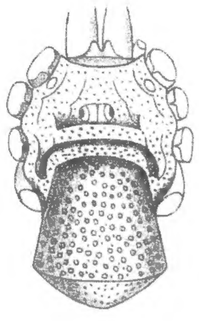

16a


18


20


14


15


16

1,1a ♀ HERNANDARIOIDES PLANA.
2,2a-d ♂ METAPACHYLUS GRACILIS.
3,3a,b ♂ PARAMITRACERAS GRANULATUS.
4,4a-d ♂ " HISPIDULUS.
5,5a,b ♀ " "
6 ♂ METACONOMMA FEMORALE.
7,7a-d ♂ PALPINUS LEVIS.
8,8a ♂ PHALANGIUM ARMIGERUM.

F.O.Pickard-Cambridge, del.

9,9a ♀ PHALANGIUM ARMIGERUM.
10,10a ♂ " HORRIDUM.
11,11a ♂ " SPINIGERUM.
12 ♀ " "
13 ♂ " ACANTHIPES.
14 ♀ " "
15,15a ♀ " MACULATIPES.

16,16a ♂ LEIOBUNUM CORIACEUM.
17 ♀ " "
18,18a ♀ " FOVEOLATUM
19 ♂ " DROMEDARIUM.
20 ♀ " "
21 ♂ " FULVUM.
22 ♀ " "
23 ♀ " FULVIVENTRE.

E.Wilson, Cambridge

